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List of Lectures as far as arranged to the end of the Season.

FRIDAY, May 1st. Major G. E. MALET, on "The late Royal Military Exhibition, and its value from a Military point of view."

WEDNESDAY, May 6th. Colonel the Hon. H. G. CRICHTON, Commanding Hampshire Yeomanry, on "The Yeomanry and its future."

FRIDAY, May 15th. Lieut.-Colonel G. V. FOSBERY, U.C., on "The Military Small arms of the day."

FRIDAY, May 22nd. Captain CHARLE JOHNSTONE, R.N., on "Masts and Sails as a means of training."

FRIDAY, June 5th. Lieut.-Colonel E. T. HUTTON, Commandant The Mounted Infantry Regiment, D.A.A.G., Aldershot, on "The Mounted Infantry Question in its relation to the Volunteer Force of Great Britain."

FRIDAY, June 12th. Commander T. A. HULL, R.N., on "The handicraft of Navigation, and on Nautical Surveying."

FRIDAY, June 19th. Rear-Admiral P. H. COLOMB, on "Principles of retirement in the Services."

FRIDAY, June 26th. Lieut.-General Sir W. F. DRUMMOND JERVOIS, G.C.M.G., C.B., &c., on "The Supremacy of the Navy for Imperial defence."

FRIDAY, July 3rd. Professor VIVIAN B. LEWES, Royal Naval College, Greenwich, on "The storage of smokeless powders on board Her Majesty's Ships."

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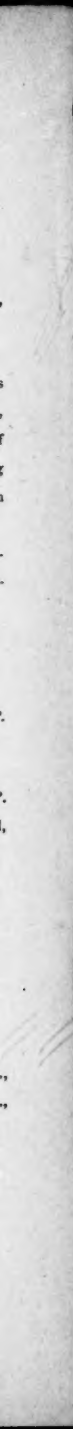
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The Journal
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Friday, March 6, 1891.

ADMIRAL SIR W. HOUSTON STEWART, G.C.B., Member of
Council, in the Chair.

NAVIGATION AND PILOTAGE OF HER MAJESTY'S
SHIPS.¹

By LORD BRASSEY, K.C.B.

THE CHAIRMAN: Ladies and gentlemen, it is unnecessary for me to go through the form of introducing Lord Brassey to this Institution, but it enhances our interest in a subject of such great importance as the art of navigation, to know that we shall hear it spoken of by one who has had such long and varied experience in the successful application of it in practice, as Lord Brassey has. Under the good providence of that Almighty Power, which has compassed the waters with bounds until day and night come to an end, Lord Brassey has navigated his famous cruizer, the "Sunbeam," round the world in every variety of weather, wind, and sea. From my own personal knowledge and observation, I believe there is not a better practical fore and aft sailor, a more skilful navigator and pilot, on the roll of this maritime country, than the noble lord who is now kind enough to address us on this subject.

LORD BRASSEY: I have on several previous occasions been invited by the Council of the Royal United Service Institution to contribute to the discussions which take place within its walls. Hitherto subjects have been assigned to me with which it has been comparatively easy to deal; to-day I feel some difficulty in addressing you. Indeed, as an amateur, I might reasonably shrink from undertaking to submit suggestions on the subject of navigation and pilotage to the consideration of the members of this Institution, if I were not most deeply impressed with the conviction that it is a duty on the part of those whom the Council consider capable of rendering service, to do all that may lie in their power to promote the success of these conferences and discussions. The Royal United Service Institution fills an important place in connection with our naval and military administrations. Officers serving abroad or actively engaged at home, are as a rule completely occupied in the discharge of their daily duties; but to those untrammelled by the responsibilities of office, and having the necessary time at their disposal, this Institution affords valuable opportunities for the full and free discussion of professional subjects. It is impossible to have served, as I have served, at the Admiralty, and not to be im-

¹ The publication of this lecture has been unavoidably delayed.—ED.

pressed with the sense of responsibility which has led me, in response to the invitation of your Council, to attempt a task presenting no ordinary difficulties. I may add that this is the time of the year when the compiler of the "Naval Annual" is busily at work, a fact which has created a further obstacle to my offering anything to your consideration to-day. With these remarks I will proceed to read the paper.

I AM here to-day at the request of the Council of the Royal United Service Institution to read a paper on "The Navigation and Pilotage of Her Majesty's Ships." The subject may have been suggested by the loss of the "Serpent," but that melancholy incident has been adequately dealt with in the finding of the Court-Martial.

It is hardly necessary to say that I have not been invited to lecture as an amateur to the officers of the Royal Navy on the science and practice of navigation. I shall deal with the subject strictly from an administrative point of view. It will be my task to consider whether the system of training in navigation and pilotage, as pursued in the Navy, is in any respect faulty, and whether there has been unwise parsimony in providing adequately for practical instruction. If it can be shown that something is left to be desired, it will be my duty to propose a remedy.

I may open by saying that the testimony is unanimous, both in the Service and out of it, and it is not less strong abroad than at home, that, with rare exceptions, the navigation of Her Majesty's ships is performed with distinguished ability and success. I need not go further back than the manœuvres of recent years for proof of the high standard of efficiency attained. It would be invidious to single out particular instances, but I think I shall give no offence by reminding this audience of the felicitous combination of daring and caution displayed in the conduct of the fleet under the command of Sir Geoffrey Hornby during the instructional cruize of 1885. The long and deep armoured ships of which that fleet consisted were navigated without accident through a prolonged series of difficult operations on the west coasts of Ireland and Scotland. Such feats as the departure of the fleet from their anchorage in Blacksod Bay in a dark and boisterous night, and the passage through the narrow and tortuous Sound of Islay and the western shores of Cantyre at night, deserve to be remembered. Similar performances have been often repeated, even in the peace annals of the British Navy. The escape of the "Calliope" from destruction is a recent illustration of seamanlike skill. The younger officers of the Navy may justly take credit for the able manner in which the torpedo boats commissioned for the manœuvres have been handled and navigated.

While giving this meed of well-merited praise, it is my duty to call to mind certain exceptional instances in which disasters have occurred, which can only be accounted for upon the assumption that the officers responsible were without the practical knowledge and experience which it is the duty of the Administration to secure in every individual appointed to fill a position of responsibility for the navigation of Her Majesty's ships. The loss of a gunboat on Tory Island—a small rock marked by a powerful light, and surrounded on all sides

by deep water, was a most deplorable, because easily to be avoided disaster. I may mention another case, that of the stranding of the "Starling" in the Red Sea, on the Dædalus reef. Fortunately this error of judgment was not attended with loss of life. I am not anxious to lengthen the catalogue of disasters, or I might refer to the stranding of an Indian troopship on the Isthmus of Tarifa, the loss of the "Lily" in the Straits of Belleisle, and to other instances of error, presumably due to inexperience.

And now let us ask ourselves whether incidents such as I have referred to are attributable in any sense to defects in our method of training. I venture to assert that they may be traced to a faulty system. We have not secured, as it was our duty to secure, for every officer in the Navy, sufficient practice at sea in navigation and pilotage. Until within a recent period no midshipmen were appointed to mastless ships. This restriction is now no longer observed, and the change is, from many points of view, to be regretted. Partly owing to the substitution of mastless for masted ships, and partly owing to the considerable periods spent on shore in the Gunnery and Training Schools, and the College at Greenwich, the actual service at sea in the early stages of a young officer's career has been unduly shortened. On the other hand, the standard of attainments in mathematics is being raised; our younger officers are becoming more scientific in gunnery and better acquainted with Physics, Chemistry, and Electricity, while their opportunities of gaining experience in an essential branch of the profession, in which proficiency depends upon practice, are being lost. The advantage to the Service of having a certain number of officers of the highest scientific attainments cannot be overrated; but in providing the means of higher education for the few we must take care that we do not turn the attention of the Navy unduly to scientific as distinguished from practical qualifications.

The latest Committee on Naval Education assumed in their Report that young naval officers on joining the Royal Naval College, at 19 or 20, would have attained a fairly sound practical knowledge of navigation. There is reason to apprehend that the cases are numerous in which such an assumption could not be sustained. It is generally admitted that the Flying Squadron offers all that could be desired for the training of young officers on first going to sea. Unfortunately only a certain proportion of our midshipmen have served in this excellent school. It should be arranged that every cadet should begin his service in ships of the Flying Squadron. A midshipman who has served throughout the early stages of his career in ships not suitable for training purposes, will not find the means under existing arrangements of making good his deficiency at a later stage. He spends six months in the Naval College at Greenwich; his college course is followed by a month on the "Vernon," and three months in a gunnery ship. It concludes with a two months' course of instruction in pilotage. On passing an examination in pilotage the sub-lieutenant is confirmed in his rank. It is evident that a scheme of instruction such as that which has been sketched out is more favourable to scientific training than to the practice of navigation.

The suggestions of the Committee on Education would provide no effective remedy. Limiting their proposals to the officers borne for navigating duties, they recommend a six months' course at the Royal Naval College with only such practical instruction and exercise as can be obtained in a pinnace attached to that establishment. I would urge that a six months' course of instruction in pilotage is indispensable for all officers who may be placed at any period in their career in command of ships. The instruction should not be merely theoretical, but should embrace a thorough practical training at sea. For this purpose a small flotilla of suitable vessels, such as cutters, withdrawn from the Coastguard service, and gun vessels, should be maintained. In these vessels officers should be constantly at sea, and especially at night, in waters crowded with shipping and difficult of navigation. The Downs and the channels extending from the North Foreland to the Nore, and the North Channel to the Thames as far as Yarmouth Roads, should be frequently visited. The instructional cruizes should extend in the summer months to the West Coast of Ireland and the Baltic; in the winter to the Mediterranean. At Malta a yacht, or other suitable vessel of moderate size, should be provided, and should be constantly at sea during the winter, visiting the ports of Sicily and the Ionian Islands. Harbours should be frequently entered at night.

We have been behind other nations in the completeness of our system of instruction for young officers in the important branch with which we have to deal to-day. In the American Navy six years are spent by young officers at the Naval Academy, and the cadets cruise for three months every year in sea-going vessels. In the Austrian Navy officers spend four years at the Academy, and they are at sea two or three months every year. In the Danish Navy the school course extends over four years, eight months of every year being spent on shore, three months in a corvette, and a month in a gunboat. In the Dutch Navy four years are spent at school, and the midshipmen cruise in summer in a corvette. In the French Navy two years are spent on board the "Borda," to which vessel two sea-going corvettes are attached for practice in cruising during two or three months in the summer. On leaving the "Borda," a year is spent in the sea-going training ship "Iphigénie." In the German Navy the course of instruction extends over a period of five years. The pupils in the Naval School at Kiel cruise at sea during the summer months in the Baltic and in the English Channel. On leaving school they spend two years in a training ship at sea. In the Russian Navy the school course is six years. Every summer the whole training establishment is removed for four months to a Training Squadron, consisting of three or four corvettes. In the Swedish Navy the course is for six years, eight months of every year being spent on shore and four at sea.

The impossibility of making a good navigator and pilot by merely theoretical instruction is well illustrated in the passage which I shall read from a paper prepared by Captain Kiddle on the education of Naval Executive Officers. "The education of a Naval Officer," he

says, "may be roughly divided into two parts; seamanship, and, to use a common but expressive phrase, learning. Good seamanship means something more than handling a beautiful ship in fine weather; it means that those who are proficient in its mysteries never allow the slightest signs to pass unheeded; it means that whether an officer is watching the reefing of a top-sail in a gale, or setting a royal in the trade winds, or running his ship on a dead lee shore in thick weather, or rounding-to to pick up a shipmate who has fallen from aloft, a knowledge of its principles enables him to do exactly the right thing at the right time. It means that each cloud, as it rises above the horizon, should be carefully watched and its probable effects as carefully weighed; it means that the slightest discoloration of the water, the presence of a patch of seaweed, or the appearance of a land bird, should at once command attention, to know why they are there, and what they may possibly indicate, and this with a vigilance which is untiring and sleepless. . . . You can no more produce a Nelson by sending a boy to the 'Britannia,' than a Vandyke by articling him to an artist; the feeling is innate. It was seamanship that enabled Nelson at the Nile to discern with unflinching correctness that where there was room for an enemy's ship to swing there was room for one of his to anchor; it was seamanship that enabled him at Trafalgar to perceive that by breaking and doubling on the French and Spanish lines he could attack them in detail; and it was seamanship that enabled Hawke, on the ironbound coast of Brittany, to say to the master who called his attention to the dangers of a lee shore, 'You have done your duty, leave the rest to me.' At present this branch of the profession is apparently subordinated to the torpedo and long-ranged gun. The modern navigating-lieutenant is drifting into the position of the officer he displaced; and if reports are true the majority wish to avoid the duty."

The last observation of Captain Kiddle receives support from the Report of the Committee on Education. "Before proceeding," they say, "to indicate the lines on which a special course might be arranged, we would direct attention to the widespread feeling of disappointment which prevails among navigating officers. Of all avenues to promotion, the performance of navigating duties has come to be regarded as the longest and most tedious. While the lieutenant who takes up the gunnery, torpedo, or first-lieutenant line is tolerably sure of advancement, the lieutenant for navigating duties, whatever his ability, and however expert he may be, has the mortification of finding his juniors constantly promoted over his head. Accordingly the navigating branch, though possessing some advantages, is avoided by the more enterprising members of the profession. It is obvious that this state of things, if prolonged, will lead to serious mischief. The tendency will be to drive every officer of ability from navigating duties; and yet everyone recognizes how important it is that those duties should be well performed." The remarks which I have quoted point to an error in the distribution of rewards which it is urgently necessary to rectify.

Having dealt with training in the early stages we pass on to

the practice of navigation in sea-going ships. Admiral de Horsey, in some able letters, has urged that more attention should be paid to navigation than has been customary with many officers. The Admiralty have given their endorsement to the recommendations of the gallant officer by a recent circular. Of the wisdom of Admiral de Horsey's advice it is not possible to entertain a doubt. All the responsibilities of the command of Her Majesty's ships are properly centred in the captain. It is obviously his duty to keep himself efficient, not only to superintend the work of his subordinates, but to take charge, personally, in a critical moment. The varied duties which devolve upon the captain of a ship of war do not admit of the same devotion to navigation which might be expected from a captain of the Mercantile Marine: but navigation has been too much neglected by the executive line in the Navy.

The subject of this paper brings up for consideration the change which has been made in recent years by the abolition of the navigating line. I see no reason to regret the part I took in the debates on this subject in the House of Commons. The testimony is general that the navigating duties are well performed by the lieutenants of the executive line, who volunteer for this service. The old masters, in the early stages of their career, had few opportunities of acquiring practical skill; they gained their knowledge after their promotion to the rank of master. There were social objections of a grave character to the existence of two classes on board a ship, to one of which all the rewards of the Service were open, while to the other they were denied. It was a yet greater evil, incidental to the system, that it tended to discourage lieutenants and captains from giving their attention to navigating duties. The success of warlike operations may not rarely turn on ability in navigation and pilotage. Lord Nelson in his autobiography makes special reference to the valuable experience which he had gained as a midshipman when in charge of the long-boat attached to the flag-ship at the Nore, in which he was constantly afloat in the estuary of the Thames.

We cannot revive the old conditions of service at sea. The seaman's life is no longer surrounded by the circumstances of romance and adventure which furnished a grateful theme to Lord Byron and Captain Marryat. We have to adapt the training of our officers to the service as it exists to-day. In proposing that the School of Pilotage shall be expanded from a short theoretical course at Portsmouth into a practical training of six months at sea, in vessels suitable for the purpose, and under the supervision of an adequate staff, I am proposing an addition to the training of the Navy which it should be possible to carry through at a comparatively moderate expense. I am confident that it would result in more uniform efficiency in the essential branch of navigation and pilotage.

MR. E. W. BULLER: I should like to make one or two remarks on the most interesting paper to which we have just listened. The paper, indeed the whole subject, is so interesting to many of us, that we would wish, I feel sure, to agree, as it were, with every word of it; but I cannot help thinking that Lord Brassey has to some extent pursued an argument in the paper, which I for one should be sorry

to let pass before hearing the opinions of many Officers of great professional experience, to which we look forward with much interest. Lord Brassey says that he is only an amateur, by that he means that he is a yachtsman, and he knows that I am one of the same body. There is no reason why a yachtsman should not have as practical a knowledge of navigation as a professional Officer, and I am sure that Officers present would not object to a man, although he is an amateur, rising to express his opinions on a subject of this kind, provided that those opinions are sound. The point I wish to make is this: that from what I have heard of the paper, I should put it in this form, the lecturer has said there have been losses of Her Majesty's ships; those losses show degeneration in navigational skill. Then he says the reason of this decrease in navigational skill is the excessive scientific element in training or education. This, therefore, is the conclusion to which he comes, that we must reduce the scientific element, and we must provide in its place additional practice. That is the point to which I wish to call attention.

LORD BRASSEY: I have no wish whatever to reduce the length of previous instruction of a scientific character; I simply wish to extend the two months of practical instruction into six months at sea.

MR. E. W. BULLER: At any rate, I have had the satisfaction of getting an explanation which has cleared my mind, and for which I am very grateful. The proposition means that additional time is to be given to the actual practice of navigation. There has been hitherto a sort of division or separation between the science and the practice of the art, which you do not find in any other modern practical science. I believe a reaction is taking place in that matter, and I observe in some of the works on navigation it is distinctly laid down that science and practice should be more closely combined than they have been previously. Certainly it has not been in previous years, and in support of what I say, I may quote one or two observations made by men who have achieved great distinction in the past. Admiral Shadwell in his writings continually mentions that the element of science in navigation has been reduced to a minimum, in consequence of which he says navigation has been made unintelligible, complicated, and obscure. He adds, "Do not teach navigation in this way; make it more scientific; let them know the reasons for what they are doing; let them know the why and the wherefore as well as the absolute rules they are to apply." I do not know whether it refers to the same Officer or not, but I see in a recent book by Harbord, a statement to the same effect, also under the name of Shadwell, pleading for more mathematics, for more science, so that an Officer shall not be obliged to go and look for a rule, but shall know enough of the scientific principles bearing on the subject to find his own rule. That, I think, is a very important point, and that all means the addition of more science to the practice of navigation. I know myself one expression used by Admiral Shadwell was "the fair science of navigation;" and he complains that it is overloaded with a lot of stuff which will only diminish the interest taken in it. It is complained that Officers go away and think more of long-range guns, and torpedo work, and electricity, and so forth. On this point I am not an amateur, for thirty years ago, when I was a cadet at Woolwich, the great change in the artillery of the country was being brought about. We had plenty of novelty then in the artillery world. Since those days I have watched the continued rush of young men into these modern sciences, just as in the Navy they are really leaving navigation, the essentials of the profession, and going away to these novel sciences. They do it, in pure commercial phrase, because it is better rewarded, because there is more chance of originality and independence of thought, and these are the things which pay. I would strongly suggest to Officers of experience, to whom his lordship's remarks were addressed, that they should also give some consideration to this view of a man who takes the scientific side. Why should not navigation be restored to its true position, and made much more a science than it is now? Why should there not be a demand made for improvements in the science? I think if that were done, the greater part of this question would be settled.

Captain WHARTON, Hydrographer to the Navy: Lord Brassey in his paper has opened up a very important, very wide, and very difficult subject, and one upon which a discussion will be of very great service; but I am a little afraid that despite Lord

Brassey's words all through his paper it will be rather thought by the public that the navigation in the Navy has deteriorated. Now, I do not think that is so; I do not say it is perfect, but at any rate I maintain that it is up to the mark. I have certain means of judging. I have been now some time at the Admiralty, and so far as one can judge from the accounts of the different disasters, small and great, that come to the Admiralty, there are very few of them, indeed, that can be put down to what you can really call inexperience. In all cases they are want of judgment, and that we shall never get rid of as long as human nature is human nature. You will find just the same want of judgment in Officers of long standing as you do with younger Officers. Dealing specially with what Lord Brassey has said as to the younger Officers, I do not think he has quite made good his point there. The young Officers do not come to grief more than the old Officers. Whether it is that feeling themselves inexperienced they are more cautious I cannot say; but I can state as a fact that young Officers who are, so to speak, pitchforked into ships, and have to assume the navigation of ships with extremely little experience, do not come to grief as a rule. That does not affect the argument that we should endeavour to improve, and there I heartily agree with Lord Brassey. The thing, however, that is pressing upon us more than anything else at the present moment is the want of Officers. To persuade those in authority to extend the period of practical training just at this moment is, I think, simply impossible, or at any rate it will require a great deal more proof of its necessity than we have. I am very happy to say they are reducing the time that the Sub-Lieutenant will be in passing his examination. It is all taken off the college course at Greenwich, and I think it is a most wise and practical step to take not to endeavour to make all Officers pass through the same mathematical mill. Whether they will consent to extend the period of training in pilotage is another matter. I rather doubt the value of training Officers in batches. What you want is to train them in practical pilotage, and in order to do that you want responsibility. That is the way to make a man learn. Put a man in a ship: give him sufficient knowledge to know what he ought to do, and the responsibility which will press upon him almost day and night at sea will, if there is anything in him, teach him more in a month than he would learn certainly in six months in a training ship. Lord Brassey has referred to the longer training that Officers in foreign navies go through. Without wishing to make any comparison, for we might make comparisons that we should not care to, I say, without hesitation, our Officers are better navigators than the naval Officers of foreign navies. It has been the policy of the Admiralty for many years to endeavour to force Officers to take upon themselves responsibility in pilotage by refusing to allow them to have pilots, and by saying, "If you take a pilot you must pay for him yourself." That practice has had the very best results, and the Captains never dream of taking pilots on our ships of war. I think the argument as to the training of youngsters in vessels is not very strong. Where, however, a great improvement can be made is in getting the young Officers on board our ships to take an interest in navigation, for that is where the weak point comes in. The Captains in many cases do not take quite the interest in pilotage that they should, and they do not impress upon their Officers that it is necessary that they should attend to navigation, and show them that it would do more for them than anything else. If all Officers in command took the interest that Sir Houston Stewart did when he was Captain of a ship, I am sure we should have a higher average of good navigating Officers. The question of rewards for navigating Officers is also a very difficult one, and I do not know that I should touch upon it at all. I may say this, I think the case up to the present is a little bit exaggerated. I was at one time also under the impression that, as Lord Brassey says, the navigating Officers were having the mortification of finding juniors constantly promoted over their heads. I went into the question not very long ago, and it was shown that up to the present time, although Officers have been picked out for distinguished proficiency in other branches, and have been promoted early, navigating Officers have not been, generally speaking, passed over, or, at any rate, many of them have not been passed over; but I think that one Officer should be picked out occasionally to encourage the others. I quite agree with Lord Brassey that the practice which one had under sail was of the greatest value, and it would apparently seem as if in these days of steam that we ought to have a very much

smaller percentage of accidents than there are. It is only in human nature that having steam we should place reliance upon it, and so, perhaps, run rather closer and probably nearer to danger than was done in the old days, when the ships had their sail power only. In the case of a lee-shore in former days a much greater allowance was made. It is a thing yet scarcely realized that a vessel under steam makes leeway with a beam wind and sea, and sufficient allowance for this, over and above currents, is often not made. These are small points which I thought I should like to mention; but, in concluding, I would say that I wish heartily to thank Lord Brassey for introducing this very interesting subject to our notice.

Admiral MAYNE, M.P. : I should like to say, as I took upon myself also to write to the "Times" on this subject, at the time that Admiral de Horsey did, that I entirely agree with Captain Wharton that the science of navigation in the Navy has not gone backward in the least. It is no disparagement to the old masters to say so, because we all know and fully recognize their immense value, but the manœuvres of the last four years are alone perfectly plain evidences that the handling of our ships going in and out of harbours, and the English and Irish Channels, and the "pilotage" part of navigation, at any rate, is as good as ever it was. I think when Mr. Buller spoke of Admiral Shadwell wishing that the teaching should be more "scientific," that he rather used a wrong word, a more "intelligent" rather than a more "scientific" teaching was meant. I think the idea was not higher science, but that a man should know the meaning of what he did; what he really means when he talks of time, declination, equation of time, and the other elements that he is using. I have always thought that it is a great pity that Captains do so little as a rule to familiarize young Officers with navigation and astronomical observations; that instead of treating it as the simple matter it is, there is so much fuss made about it, and one of the greatest follies is working to seconds at sea. I have continually asked a man, "Why do you work to seconds?" It is quite impossible to observe to seconds at sea. If you can get an altitude within one or two minutes under ordinary circumstances you may be quite content. If you strike out the seconds in the working of the chronometer and the meridian altitude, the whole reckoning would not take above ten minutes to work out. Any time in the forenoon the man gets ready he merely gets the altitude, adds up three or four lines of figures, and the thing is done. The real trouble is that the whole of the navigation of a ship is, and has invariably been in the ships that I have been in, with the exception of surveying ships, underrated, not given anything like its proper importance in daily routine; there is not that weight attached to it that there ought to be. I agree with Captain Wharton that teaching in batches would do little good; as evidence of the small effect of it, one might remind any old college Officers who were supposed to learn steam going in and out of Portsmouth Harbour in the "Bee" how little was really learnt, without disparagement to any of them; one may refer to the Officers who are supposed to have learnt surveying, whether at Portsmouth or Greenwich, by going about in batches with an Officer, himself, no doubt thoroughly qualified; but I have never heard of any real surveyor having been turned out by this system at either of these places. I am convinced that the principal reason of the fact on which the Hydrographer (Captain Wharton) has commented, that the younger Officers navigate in proportion to their years and experience, certainly better than the older ones, arises from the simple fact that when the Lieutenant has passed he drops his book for ever. No more study is necessary during the remainder of his career. The Captain of the ship is not supposed to know the details of gunnery, and it does not much matter if he does not, he sends for the Torpedo Lieutenant, or the Gunnery Lieutenant. But as he has forgotten the gunnery and torpedo work, so he has forgotten the navigation, and when after four or five years on shore, following several years as First Lieutenant, during which he was excused, never having studied it very closely, he takes command of a ship to navigate her, he is practically unfit for a time to navigate her. I have suggested here—I am afraid it is not likely to meet with the sympathy of my brother Officers—that we should have something of the description of the Military Staff College, and that Officers should have to pass at least in navigation and pilotage as Commanders and Captains before they are given command. I regret that I cannot share the apparent approval which

Lord Brassey gave to the circular upon the navigation of H.M. ships, which has been issued of late by the Admiralty. I know as a matter of fact that there are many valuable Officers afloat at this moment who look upon it as an insult. I have received letters myself saying that they utterly deny the insinuation, that the ships of the present day are not as well navigated as they ever were, and consider that they pay the utmost attention to the navigation of their ships. I regret that, the orders on the subject being so distinct as they are in the Queen's Regulations, it was thought necessary to issue a general circular upon the loss of a small gun-vessel; I feel convinced that no Officer who would neglect such a duty as the safety of his ship and crew without a circular is more likely to attend to it on the receipt of one.

Commander HULL: As an old Master, I should like to give my approval to the very practical paper which has been read, a paper useful to the Navy, and therefore to England. What particularly struck me was Lord Brassey's calling attention to the necessity of practice. It has been my good fortune to be employed lately on the revision of a work that the Chairman and all sailors know well, viz., Raper's "Practice of Navigation." Published in 1840, the book is still the best treatise on navigation that I know of. The portions relating to the compass had to be re-written through the introduction of iron in shipbuilding, but any attempt to add to other parts of the book would have rather spoiled than improved it. The argument of the work is "practice." I will, with your permission, read a short paragraph which bears very much upon what Lord Brassey said. It is taken from the advertisement to the nineteenth edition of this book. "The simplicity of its mathematical theory makes navigation appear an easy matter to men teaching or using it on shore, but pilotage, common and proper, is a very different business when practised by sailors in a gale of wind, at night, or in hazy weather, on board a ship at sea. Proficiency in the science can never compensate for a lack of experience in the handicraft of navigation. This experience can be obtained only by incessant practice at sea; by a capacity for taking trouble, unceasing caution, and a desire to do well." I have been somewhat comforted by the remarks of my friend Captain Wharton, who, although I am not serving at the Admiralty, I still consider to be my chief. His remarks have helped us much. At the same time I would keep in view Lord Brassey's excellent advice to keep up practical instruction. When I had the good fortune to be an examiner at Greenwich, under the late Sir Astley Cooper Key, who we all know was quite equal to any question of navigation, the Oxford and Cambridge part of the management wished me to set a paper on the sextant. I did not see my way to find out what an Officer might know upon the principle and use of this all-important instrument by a paper. My idea was that an examination as to the sextant must be conducted with the instrument in hand. I wanted to see how an Officer took the sextant out of the box, to see what screws he touched; in reply to my questions as to the adjustments how he looked at the sun with it, in fine to see his mode of handling the weapon. I question whether a man could scrape through such an examination who was not thoroughly acquainted with his instrument, whereas on paper, a man might explain what his fingers could not do. The suggestion as to the six months' course of instruction in pilotage is a very good one, although I quite follow Captain Wharton that it is no use to try to train men in batches, still by making Officers in turn responsible for a season for the safety of the ship at sea, letting them understand that errors or ignorance tending to place the ship in danger would mean danger to themselves, might cause them to begin to feel the earnest nature of responsibility at sea. Gunners men often lament that there is no war to try their powers. The navigating men are better off. We have got the wind and the sea, which will always oblige us with a war if you only choose to sally out and battle them. The pilotage training ships should be sent out into the Channel or down to the Straits of Gibraltar, purposely in bad weather, because that is the test to try the powers of the Master. From all I hear I am disposed to agree with Lord Brassey as to the neglect said to be suffered by navigating Officers. The duties that have to be performed on board a ship of war appear to me to be after the fashion of a three-stranded rope: there is the First Lieutenant's duty to maintain discipline, the gunner's duty to use the weapons of war, and the pilot's duty to handle the ship. A man should

be as certain of getting his promotion from pilotage as he should from torpedo practice or from doing his duty as the First Lieutenant. As things are I can quite fancy a man of the world saying to his son, "Now, my lad, just as little of navigation as you can manage, you won't get much out of that; you go in for torpedo or gunnery work." I hope that I am wrong in that conclusion. Lord Brassey says that the success of warlike operations may turn on ability in navigation or pilotage. Many here will remember an incident in the war between Chili and Peru, and the loss of the large Peruvian ironclad "Independencia" on the coast of South America. As far as I remember, that great ship was lured on to the rocks by the artful pilotage of a small corvette, the "Covadonga." That is a case which, I think, proves all that Lord Brassey has said. Never mind how perfect a ship may be in her artillery, let her gunnery Officer possess the combined talent of all the "Excellents." Let her discipline be of the highest order, still unless that ship also possesses a pilot competent to handle her in safety and efficiency on the high seas and in narrow waters, and place the platform carrying men and guns in the required position, the abilities of Gunner and First Lieutenant are wasted, and the huge mass is little better than old iron. Lord Brassey naturally refers to Nelson—a name that comes into most good naval papers. Nelson's success at the Nile, Copenhagen, and in the famous pursuit of the combined fleets of France and Spain across to the West Indies was due to the fact that Nelson was not only an Admiral, he was also a pilot.

Captain FAWKES, R.N.: Having just come home from the command of a ship, it may be useful if I say one or two words. One of the great points in Lord Brassey's lecture is the necessity of experience. That experience cannot be taught, and I believe the practice to which he alludes of the present Navigating Lieutenants dropping into the old lines must continue, because it is necessary. It has been said that navigation is easy to acquire: so it is at sea, but in war time we may have to go in to engage forts, or try to cut ships out. It seems to me that the man who can take a ship at great speed into harbour or into narrow waters must have had experience in picking up land-points which he has never seen before, and that can only be got by practice. I think myself that Navigating Lieutenants should be encouraged by promotion. A good Sub-Lieutenant when promoted to Lieutenant naturally goes to the Captain, and says, "What had I better go in for?" That means, "What will get my promotion quickest?" if he is worth anything. The navigators ought to have just as good a chance of promotion as the others. My experience has been that it is not necessary for the Navigating Lieutenants to navigate only, and in the ship that I have just commanded the Navigating Lieutenant was also First Lieutenant. No doubt in many of the ships that cannot be done, but he can do something, and if he wants promotion he must be allowed to take a share in other parts of the work of the ships, and I think if they see a chance of getting promotion through it, they will be quite ready to do so. I do not think that any one who has not been aloft lately can realize how energetic Lieutenants are until they have lost all hope of promotion. They take an enormous amount of interest in everything; and I may say, without having given any such orders as that excellent one of the Chairman, I have been quite surprised in the morning to see what interest is taken, the numbers of sights taken, and the energy with which the young men work. On two occasions I had Lieutenants navigating the ship with very marked success. I think if Lieutenants have only a fair hope of promotion they will try and fit themselves, not only for torpedo and gunnery, but also for navigation work.

Admiral Sir ERASMUS OMMANNEY, F.R.S.: I believe that something could be done by Commanders-in-chief of stations and Captains, by providing the means for young Officers to become acquainted with the hydrography and pilotage of the localities where ships are stationed. Looking back to the old regulations of the Admiralty, it very much depends upon the way in which Captains discharge their duties in all that relates to navigation, and what they require from the young Officers in working out the reckoning of the ship, and taking astronomical observations in order to make them good practical navigators, because where a Captain manifests a personal interest about the navigation it inculcates a desire to follow a good example. Unquestionably it is a very great advantage to gain experience from early responsibility; it was my good fortune in early life to enjoy it, for when I served in the Royal

Yacht as a mate, in the reign of William the Fourth, instead of idling in Portsmouth Harbour, the Lieutenant, four mates and a crew, were placed in a 10-gun brig for packet service, and employed in carrying the mails continuously between Falmouth and Lisbon; no navigating Officer was appointed, therefore by necessity the navigating duties were carried out by the mates; from this circumstance I acquired a thorough knowledge of practical navigation. Following on this service, I served under Captain James Ross as a Lieutenant, on a forlorn expedition in the depth of winter to Baffin's Bay in a hired whaler; in this vessel there was no special navigating Officer, so that I had again the advantage in acquiring further experience in practical navigation, which proved of great value to me, and inspired me with confidence in the various commands which I have held in the Service, likewise affording a pleasing interest in the superintendence of the navigating duties. I was pleased to hear the observations which fell from Captain Wharton, as I feared that after hearing the paper the audience might carry away an idea that the Navy was deteriorating in navigation matters. It is a long time since I was afloat, but I hope that the Captain will always be held responsible for the safe navigation of his own ship.

Captain C. JOHNSTONE, R.N.: I think the importance of the study of the profession cannot be at all underrated, but the time at the disposal of an Officer in the part of his career before he comes into a responsible position is limited, and it is quite possible to overdo the courses of instruction through which he has to go. The whole of the education of a man is now crowded into a few years at the outset of his service. It has been said that there should be an examination later on; I do not think an Officer should be examined when he gets to high rank, or after he passes a certain age, but it is a great pity that the whole of the examinations should come to an end at the age of about twenty. I think it is quite possible to spend a great deal too much time on these courses of instruction. That is the only objection I see to the lecturer's proposal as to having a course of six months' actual instruction at sea, viz., that it takes up so very much time. As Captain Wharton has said, people do not pay so much attention to these things as they ought, unless there is responsibility attached to them; the moment they have to do them with an object, they study them in a way they never thought of doing before. It has been said that a seaman must be born, that he cannot be made. Now I think it would be very unfortunate if that idea should go abroad. There are plenty of people who go to sea, who certainly were not born to go to sea, but they make uncommonly good Officers. Good seamanship can be attained by hard study, and it is not at all necessary that a man, if he is to make a great mark in his profession, must be born for it, at least I do not think that is a proper conclusion to come to. Captain Wharton refers to errors of judgment. I think experience *does*, to some extent, overcome errors of judgment, and that want of judgment is very often due to want of experience. Therefore we ought to expect that with more experience people will not make so many mistakes. I think in the letters written by Admiral de Horsey and Admiral Mayne (I am sorry Admiral Mayne has gone), which appeared in the "Times," with regard to the navigation of Her Majesty's ships, it was rather too much assumed that Captains did not pay enough attention to navigation. Navigation is a specialty, and although Admiral Mayne talked about working chronometers in five minutes, I should be very sorry to attach much importance to a chronometer that was worked in five minutes. I have paid a good deal of attention to it, and after making a custom of working up the ship's reckoning myself, I found when I went into a squadron that I could not do it; there was no time for it. The Captain's time is taken up in watching the Admiral or different matters, and he has not time to pay very great attention to the working of navigation himself. Of course he should oversee it, but he has not time to go through all the details, because it is no use doing it in a half-and-half sort of way. I think it is very much better that it should be an understood thing that the Captain should oversee the navigation of the ship, and make himself responsible for it, and not at all that he should work it out himself. With regard to the study of navigation, I think the Admiralty has taken a backward step to some extent. About three years ago, or to go back a little further, when I commanded a ship in the training squadron, I first came again in contact with Midshipmen, not having been with

them for many years, and to my surprise I found that the Midshipman's work-book was almost entirely given up. Midshipmen were formerly ordered to enter their reckonings daily, and to produce them at all examinations, but I found this had been given up, and that Midshipmen in many cases could not produce their books, they had not been kept up continuously. The Naval Instructor, when spoken to about Midshipmen working sights and so on, said, "If the Midshipmen take up all their time in working sights and navigation, how shall we get sufficient time for mathematics?" So that certainly, in his idea, the navigation of a ship must be subordinated entirely to the Midshipmen working up mathematics. The regulation in the Admiralty instructions was that a Midshipman was to work his reckoning daily and to enter it in his book, to produce it at all examinations; but about three years ago the regulations as to Midshipmen were modified considerably, and for some reason or other, as I say, this was withdrawn, so that now I do not think there is any rule that will compel a Midshipman to produce his reckoning regularly. I do not suppose that was the intention, but at the same time it has that effect, and it certainly has opened the way for those people who wish to put navigation on one side, and think it of more importance to study pure mathematics. I think that is a point that deserves attention.

Colonel RICHARDSON, R.A.: A complete outsider sometimes sees a good deal of the game. Most of the speakers to-day have been decrying the College in which our naval Officers study, and there has been a sneer at the university element in it. What I wish to ask shortly is:—Could not science and navigation be combined by taking the Naval College to sea? I think you would get rid of a good deal of the university element then, and possibly both practice and science would be more firmly united. Soldiers notice a growing tendency in the Navy to come on shore and imitate them. Soldiers go through a number of special courses, during which they partially forget their regular work, and I now see the Navy going through course after course, on shore; they live in barracks, on shore; and they imitate our discipline. It is very flattering to us, but soldiers look upon the Navy as their first line, and we certainly should like to see our first line out at sea, or working in these difficult channels that Lord Brassey has told us of. What I suggest, then, is that the Naval College might spend its time partly afloat acquiring knowledge practically.

Lord BRASSEY: It now only remains for me to thank those who have spoken for the indulgent terms in which they have expressed themselves. I scarcely venture to go so far as to hope that the discussion will impress the Board of Admiralty with the necessity for making any further provision for the practical instruction of our young Officers, which would involve the country in increased expense. There can be no doubt that to extend the course of instruction in pilotage from two months to six, and to provide a flotilla in which the young Officers might be instructed by frequent service at sea, would entail increased expenditure. The flotilla would cost something, and as the course of training would be extended over a further period of four months, a certain addition would have to be made to the number of Officers on the active list of the Navy. The discussion which has just taken place will not, however, be without its value, even though the principal proposal which has led to it may not be adopted. It is, for instance, of great public interest to receive from the Hydrographer of the Navy the reassuring statement that he has made with regard to the general proficiency of Officers in the duties of navigation and pilotage. I trust it will not be assumed, because I was invited to read a paper here on Navigation and Pilotage, and accepted the invitation, that it was implied that there was a falling-off from the former standard of proficiency. The disaster which befell the "Serpent," under circumstances which can never be accurately known, and on which it is not profitable to speculate, led to some discussion in the public journals; but I am quite sure that among members of the profession, and among those most competent to form an opinion, no doubts have been created as to the general proficiency of those who navigate Her Majesty's ships. I am glad to have had the opportunity of calling attention to the important paragraph in the Report of the Committee on the Higher Training and Education of Naval Officers, in which allusion is made to a widespread feeling of discouragement among those Officers who take up navigating duties. I rejoice to hear from Captain Wharton

that there seems to be no adequate reason for such a feeling. If we should now be arriving at a time when, as he says, there may be more difficulty than has hitherto been experienced in getting a fair appropriation of reward to those executive Officers who devote themselves to the subject of navigation, I feel confident that great pains will be taken at headquarters to see that justice is done. It would be a most untoward thing for the Navy if these duties should be taken up by men of less ability than is found amongst those who turn their attention to gunnery, torpedoes, and other specialties. I am glad to have been the medium of making known the valuable order which Sir Houston Stewart issued on board the ships which he commanded.¹ It seems evident from all that has fallen from various speakers that a good deal can be done by Commanding Officers generally to encourage amongst the younger Officers attention to navigation and pilotage. If the discussion of the subject should tend in any degree to promote this result, our afternoon will not have been spent in vain.

The CHAIRMAN: I have to thank Lord Brassey for so kindly giving prominence to my order. I consider that the teaching of the young Officers of the Navy practical navigation is in the hands of their Captains and Commanders. If they carry out strictly the regulation of the Admiralty, as to the practice of navigation of necessity, the Officers of a ship must become good practical navigators. I found that the result of this order, strictly carried out, was to induce all the Officers to take a very great interest in the navigation of ships. With reference to what has been said about foreign navies. I have always had the greatest interest and respect for everything that fell from Mr. Pitt, and reading his life there remains on record his advice to this country, never to lose sight of what is being done in the French Navy. He considered that the French Navy was regenerated after the Revolution was at an end, and he said, "Let us watch France more actively than in former days, because she has attained new and extraordinary energies." Let us always be alive to what is being done or developed in that Navy. I say the same of the Navy of the United States. I think the history of the American War shows us what America can, and what she will do in case of a naval war, and why should it be otherwise, because if this old country is renowned in sea-fight, why should not the oldest, and the greatest of our progeny, inherit our skill? Therefore I hope whatever is done in these navies will be closely watched by us. Lord Brassey, I am sure, must gather from what has been said at this meeting, how truly we thank him for coming here to-day, and giving us this most interesting and valuable paper. I am sure you will cordially join with me in asking him to accept our very best thanks for his presence amongst us, and what he has done for the Institution.

¹ Mentioned during some *visd voce* remarks by the lecturer which he has not recorded.—ED.

Friday, April 3, 1891.

GENERAL SIR C. P. BEAUCHAMP WALKER, K.C.B., Vice-President, in the Chair.

SOME RECENT CONTINENTAL IDEAS UPON TACTICS.

By Captain J. M. GRIERSON, R.A., D.A.A.G.

I AM afraid that the title of this lecture is somewhat misleading, as, far from laying before you ideas or *theories*, I desire to bring to your notice some points in the *practice* of foreign armies in marching and battle tactics, which have struck me as differing from the methods employed in our own Army. My remarks principally will refer to the German Army, the manœuvres of which I have had the privilege of attending for the last two years, and, at the outset, I desire to state that I have no intention of criticizing or drawing a comparison between our own and other armies. I merely intend to lay the facts before you, and to leave the criticism to others better qualified than myself.

The secret of victory is said to lie in the legs of the men, and this principle appears to be fully grasped in Germany. Nothing is more striking than the admirable marching discipline maintained. There is no straggling or opening out, the sections are kept well closed up, an even and regular pace is maintained, and I have often noticed the pace being carefully timed and corrected. On the line of march, German infantry break step invariably, each man assuming the length of step that suits him best, and thus the strength of the men is saved as far as possible. This breaking of step, however, is not allowed to interfere with the rate of marching, which is 114 paces of 31·2 inches, or 93 yards a minute. With the enormous masses of men which will appear upon the Continental battlefields of the future, it becomes of the utmost importance to shorten the marching columns, and various experiments have been tried in this direction. One was to make columns of infantry and artillery march side by side on the same road, but this was not a success, on account of the dust caused by the artillery seriously inconveniencing the infantry, and therefore diminishing its marching power.

The system now generally adopted appears to be to move on as broad a front as the road permits. The infantry are wheeled up by sections, corresponding to the breadth of the road, these sections being then closed up, and the artillery move in column of sections

close interval, also closed up. This procedure, of course, fatigues the men and horses more than the usual marching formation, but it becomes a necessity in the neighbourhood of the battlefield. It of course implies careful previous reconnaissance of the road to ascertain the narrowest part, and therefore the maximum permissible front for the sections, as checks and changes of formation are even more productive of delay than lengthened columns. When a defile is to be passed, step is to be picked up, the troops march at attention, and the drums beat.

Before proceeding to consider battle tactics, I would here point out that in the German Army it is the invariable practice to carry out all manœuvres, in fact, all work off the drill-ground, with the infantry, and generally also the other arms, in marching order. Field days in drill order are unknown, and the men are thus accustomed to manœuvre in peace as they would fight in war. To distinguish opposing forces, one side puts on white helmet covers.

The three great factors which have influenced battle tactics in the last few years are, of course, smokeless powder, magazine rifles, and, lastly, the introduction of the new small-calibre rifle.

I think that one requires to see smokeless powder used by large masses to grasp the enormous difference it will make in the appearance of the battlefield of the future. At a few yards distance, only a faint blue haze is seen when a single rifle is fired, and even when large bodies are using their rifles as repeaters, the smoke is so slight as to make no real difference to those firing. I saw this well on one of the days of the 1889 manœuvres, when the right wing of the Xth Corps was thrown out of a wood by the VIIth, and the troops of the latter lined the edge of the wood with dense shooting lines, which opened a heavy magazine fire on their opponents retiring over the open. It was a dull, damp day, and one on which the smoke might have been expected to hang, but, retiring with the Xth Corps, at 200 yards from the wood it was impossible to tell that the troops lining it were firing at all, except from the noise. Evidently, this new powder must give a great advantage to troops on the defensive, who can now see to shoot, but the loss to the troops taking the offensive of the covering cloud of smoke does not seem to have had the effect of shaking the German belief in the superiority of the offensive. They think that on the offensive there are more factors tending to maintain the morale of the men than on the defensive, and they have an intense respect for their old traditions, which lead them to press forward at all costs and seek a decision at close ranges. From what I have heard, I imagine that darkness will be much taken advantage of to bring troops up to close ranges, but the Germans are sceptical as to the possibility of making the attack proper in the dark. They believe that it will be possible to seize localities at the point of the bayonet, push forward infantry to cover the deployment of the artillery, and even bring the guns into action in their first position in the dark, but the disorder inseparable from a night attack is so great that beyond this they are not likely to go.

The adoption of magazine rifles has, of course, necessitated a largely

increased supply of ammunition being provided for, and the rapidity with which the pouch-ammunition will be consumed has increased the difficulties of distribution. All Continental armies appear to have endeavoured to solve the latter problem by fractioning the supply, and have adopted light wagons, attached to the companies, instead of the old large battalion ones. In this respect the Russians have gone farthest. Their ammunition carts are low two-wheeled carriages, drawn by a pony, driven by a man seated on the top of the cart. Each company has two such, carrying forty-eight rounds per man (Berdan rifle). These carts can go almost anywhere, and, being small, can find cover almost anywhere, and so work their way closer up to the shooting line than large wagons. The German regulations lay down that the wagons are to be brought up to, if possible, at least 800 yards from the shooting line, that every effort is to be made to send forward ammunition, without waiting for it to be asked for, and that before going into action every available place in which a man can carry a cartridge is to be filled. The battalion commander is responsible for the supply of ammunition, and the great principle to be observed is that no men are to be sent back from the fighting line, but men from the reserves are to be sent forward. Every reinforcement of the fighting line is to bring up fresh supplies of ammunition with it.

More than smokeless powder, more even than the repeating principle, have tactical formations been affected by the new small-calibre rifle. The weapon with which the German infantry is armed is used entirely as a repeater, and not, as with us, as a single loader with the magazine held in reserve for supreme moments, and the all-round effect of its introduction has been to improve the shooting of the infantry by about 200 yards. It is now laid down that, at 275 yards, the smallest object, at 385 a kneeling figure, at 550 two kneeling figures, and at 660 two standing figures may be expected to be hit. Other European armies are now armed, or are being armed, with a rifle of similar accuracy, and, consequently, modifications have been made in the distances from the enemy's infantry position to which closed bodies can be brought up. In the German empire regulations used up to 1890, it was laid down that between 660 and 880 yards, closed bodies in the open or behind defective cover could only be allowed to remain halted or to move to a flank for a short time, and that only when the fire of the shooting line covering them was in a measure equal to that of the enemy, and that closed bodies could not, in any case, approach within 275 yards of infantry in position. These distances have all been increased by 220 yards by the regulations issued in 1890, and now the company columns, in which the supports and reserves are brought up, are forced to extend at about 800 yards when under infantry fire. If under artillery fire the companies form line at about 1,500 metres. In fact, company columns have all but disappeared from the battlefield, and supports and reserves are now generally formed in line. Nothing is, however, laid down in the German drill regulations as to at what distance supports, &c., are to extend, and I imagine that every effort would be made to bring

them up in close formations, as far as possible, for I think that the Germans would rather prefer to lose a few more men than to let their companies in the least get flurried or out of hand.

In the attack of German infantry one is particularly struck by the absence of "rushes." The whole shooting line moves forward at the quick, and thus the men keep their breath, are less exhausted, and are in much better form, morally and physically, for shooting when they do halt. Rushes are only employed when specially dangerous zones are to be passed, and are expressly discouraged in the regulations. The fractions that make a forward movement are much larger than in our Service. Generally, half the shooting line of a battalion moves forward, covered by the fire of the half remaining in position. The bursts of heavy fire which come from the halted fraction, and the steady and continuous forward movement of the shooting line, tend, in my humble opinion—if I may here venture upon a criticism—to give a much greater appearance of dash to the attack of German infantry than the smaller fractions, continuous pattering of rifle fire, and hasty and often irregular advance, which are the practice in other armies. It would seem that the expenditure of ammunition can be better controlled, and fire discipline better maintained by the German than by other systems, and also that it actually permits of more rifles being brought into play, as the fire of fewer is masked by men of the advancing fraction getting in front of those of the fraction in position.

Nothing to my mind is more remarkable than the enormous grip the Officers have of the supports and reserves. As already stated, these are kept in close order as long as possible and march in step when under fire, and, whenever there is any wavering in the shooting line, or when the moment for a supreme effort arrives, the supports and reserves assume the "parade step," the drums beat, and the bands play the regimental march. This may seem almost theatrical, but it is done with a deep purpose and for reasons of morale. The men in front hear the drums, know that their comrades are coming, recognize, perchance, their own regimental march, and so acquire new strength of mind, which, after all, is only second to strength of body, and frequently superior to it.

Volley firing is but little used by the Germans on the offensive, as they believe that in the roar of modern battle they could not expect to get volleys at anything like fighting ranges, and, accordingly, they drill their men to steady independent fire, trusting to pauses to keep the expenditure of ammunition and the fire in hand. Even on the defensive, volleys are seldom used, and I was much struck by once seeing, on two companies being told off to fire on a battery at 1,200 yards, one Captain ordering volley, the other independent fire. Long-range fire of this description is, however, quite the exception. It is the special province of the artillery, and the Germans think that infantry fire is better kept for short ranges.

Great use is made by the German infantry of their entrenching tools, with which every second man is provided. These are invariably carried on manœuvres, and are constantly used. The trenches most commonly used on the defensive are narrow and very deep, giving

cover standing, and epaulments are always constructed (by the Engineers) for field artillery in defensive positions. The typical infantry trench is 3 ft. 3 in. deep and 3 ft. 3 in. broad at the bottom, with a parapet 1 ft. 7 in. high, thus giving a total cover of 4 ft. 7 in. The gun epaulments are similar to our own.

Before leaving the subject of infantry, one word as to mounted infantry. Every Continental nation rejects it absolutely. If infantry are required to keep up with cavalry, they are conveyed in carts requisitioned locally; and in a civilized country, such as those armies fight in, this will always be possible. Even the Russians seem to be changing their ideas about their dragoons, who are armed with rifles and bayonets, and trained to fight on foot. At the last great manœuvres in Volhynia, the dragoons never dismounted, indeed, they were blamed on one occasion for having attacked mounted, when the evidently proper course to take was to dismount and take up a defensive position to cover a defile against a superior body of the enemy's cavalry.

It is hardly necessary to detain you long on the subject of cavalry tactics, as Continental ideas on this subject have been fully brought forward in lectures lately delivered before the other military institutions. We all know of the uses to which cavalry in masses will be put in battle by the Germans in the next war, and how this offensive battle-spirit finds its expression in the arming of their entire cavalry with the lance, that essentially offensive arm. Only two remarks will I permit myself, and the first is, that one very weak point in modern lines of battle will be the masses of artillery, if these are not well covered by infantry, and if the ground is at all favourable to cavalry. At the manœuvres of 1886, in Elsass, it was my fortune to stand in such a line of guns when it was charged by a division of cavalry. The mass of horsemen came on in several lines over about 1,500 yards of gently rolling stubble fields, and all that could be seen was an advancing cloud of dust, with here and there a sword, a lance, a cuirass, or a helmet spike flashing out of it. As an unconcerned spectator, knowing that I would not be charged into, I can testify to the certain amount of excitement produced by such a charge, and as a Field Artillery Officer I doubt whether, under such circumstances, the fuzes and tangent scales would be set with that degree of accuracy and rapidity which could alone stop such an attack. We should remember Tobitschau, where 20 Austrian guns were charged by 3 squadrons of the 5th Prussian Cuirassiers, with the result that the latter captured 18 guns and 15 limbers with a loss to themselves of only 10 men. We have also no longer the grape-shot for short ranges of the days of Waterloo. My second remark applies to cavalry charging broken infantry. Few who saw the charge of the cavalry division of the Xth Corps on the last day of the 1889 German manœuvres on the flank of the VIIth Corps, after its attack on the position held by the Xth Corps was repulsed, can for a moment doubt that it would have been successful, and have resulted in a *débâcle* for the VIIth Corps.

Passing now to the field artillery, the introduction of smokeless

powder appears to be both a boon and a curse—a boon because it gives a clear field of fire, and a curse because it enormously increases the difficulty of seeing and ranging the object aimed at, generally the enemy's guns in the earlier stages of a fight. But in one great way it has much facilitated the handling of field artillery, and that is by the increased latitude it gives in the choice of positions. The German artillery has recently been increased to a proportion of 20 batteries (120 guns) to 25 battalions of the mobile army corps. The same proportion is attained by the French; the Austrians have 96 guns to 26 to 30 battalions; the Russians, 96 guns to 32 battalions; and the British, 84 guns to 25 battalions; all these figures being exclusive of the horse artillery attached to the cavalry divisions. The problem will be to find room on the battlefield for the largely increased numbers of guns, and smokeless powder has enabled this problem to be in a measure solved. On one occasion, in the 1889 manœuvres, I saw two lines of German guns, one in rear of the other, on the sloping side of an isolated hill, the only good artillery position available, and this procedure would of course have been impossible with the old powder. In such a formation, the supply of ammunition must of course be attended with great difficulties, and I regret that I was not close enough in this instance to see how it was carried out. Again, in the 1890 manœuvres, the German artillery came into action habitually at half interval, thus saving much space and enabling more batteries to be got into a given front, and the fire to be better controlled by the battery commanders. With the old powder, half interval could not be employed, as the smoke from one gun would much interfere with the fire of those on its flanks. But still the masses of guns are so great that even the latitude given by smokeless powder has not enabled the batteries to dispense with the necessity of firing over the heads of their own infantry, and this the Germans never shrink from and habitually do at manœuvres, believing in the principle of training the troops to do in peace what they would have to do in war.

The improvements in the armament of infantry have not yet been accompanied abroad by an improvement in essentials in the armament of the artillery, and have of course tended to restrict in a measure the employment of the latter. In the German umpire regulations it is laid down that artillery can only exceptionally come into action within 1,000 metres of infantry, and that at 300 to 400 metres it absolutely cannot do so. At 1,000 metres artillery in action can, it is asserted, hold its own, however, against infantry, but if strong shooting lines of the latter approach to 800 metres, the batteries run the risk of being rendered unable to move. Due weight is, however, given in these same regulations to the effect of artillery fire, for it is laid down that between 2,000 and 1,500 metres closed companies or squadrons can only remain halted in the open under artillery fire when the fire of their own guns is approximately equal to that of the guns firing on them. From 1,500 to 1,000 metres, infantry can only move in line and forwards or backwards, and cavalry cannot move at a walk.

This improvement in infantry fire has naturally driven the artillery to seek protection in cover, and consequently in a defensive position epaulements are invariably thrown up for the guns, and on the offensive cover is sought for on the reverse slope of hills, or otherwise. This of course involves indirect laying, and every gun is consequently provided with the necessary apparatus.

Almost invariably the limbers are sent away to the rear under cover, and if none such is available they are formed in column of route in rear, and to one flank of the battery. The shell trays and cartouches are brought up and deposited in rear of the guns. Few batteries have wagons horsed in time of peace, but, where such has been the case, at the German and Austrian manœuvres I have frequently seen wagons brought up and unhooked in rear of the battery, the teams being sent away under cover, and the guns being supplied direct from those wagons.

In future, field works with overhead cover will doubtless play an important part on the battlefield. To shake their garrisons and ruin the cover, field guns are useless, and high angle fire from heavy howitzers will have to be employed. The Russians, whose experience of attacking earthworks is recent and probably lively, have led the way in this respect by organizing regiments of "mortar field artillery," each of four batteries of six 6-inch howitzers. One of these took part in the last great manœuvres in Volhynia, but published accounts of those manœuvres are so scanty that the method of the tactical employment of the batteries cannot be stated. Other nations have adopted shells filled with high explosives as part of the equipment of their field artillery for the same purpose.

My remarks have chiefly been based upon experience at foreign manœuvres, and, in conclusion, I very much desire to emphasize the enormous importance of these assemblies of troops in large bodies for the preparation of an army for war. Not only are they a school in which all ranks, and more especially the Staff, which otherwise has such few practical opportunities of learning its work, are trained in peace for the duties they would have to perform in war, but they are an invaluable field of experiment. I need only quote the German Regulations for Field Service, to show what I mean. These regulations form a small book of 212 pages, and give instructions as to order of battle, communication of orders, scouting, advanced and rear-guards, outposts, marches, billets and bivouacs, baggage, supplies, medical service, supply of ammunition, railway transport, and field military police in the 1st Part, and, in the IInd, instructions for the conduct of autumn manœuvres. They are common to all arms, and the subjects treated of in them are not considered in the drill books of the various arms. A preliminary edition was published in 1888, and in the manœuvres of that and the two subsequent years, the regulations laid down in it were thoroughly and practically tested, and exhaustively reported on by both Staff and regimental Officers. The result is the definite edition of 1890, and a comparison of the two shows most clearly how carefully every line has been weighed, and how thoroughly every tactical method had

been tested. Theory alone can never accomplish this, and without manœuvres on unknown ground a really practical test is next to impossible. The product of all this work has been that German Officer's bible, the *Felddienst-Ordnung*, from which Officers of all arms can learn how their own arm is to be handled in the field, and, more important still, how it is to work in conjunction with and to the support of others. It is the common ground upon which all the regulations of the different arms meet and are brought into harmony, and is the outcome and expression of the brains and experience of the German Army.

I must conclude with a word of apology for the fragmentary nature of this paper. The word "Tactics," however, covers a large field, and one can but touch on a few salient points. This I have tried to do; I have purposely kept the paper as short as possible, and I trust that the facts laid before you will lead to a comparison being drawn by others better qualified than myself between our own and Continental ideas upon tactics.

The CHAIRMAN: As Captain Grierson has been more merciful than some other lecturers of late, he has given plenty of time for what I, in my humble opinion, think is one of the most valuable functions of this Institution, viz., the discussion on the points brought forward in the lectures: I, therefore, invite those who can, I won't say to criticize, but elucidate, this most charming paper to do so.

General GOODENOUGH, C.B.: There is so much compression in the lecture that it seems difficult to commence any discussion upon it. It is admirable, but my vote would have been, if I had been asked at the conclusion, "Read it again, and a little slower." I would commence by asking one or two questions to elucidate matters. The lecturer, in the first place, said the sections were made to cover the width of the road. Do we understand that these are to be variable according to the nature of the road and the country, that it is to be left to the Regimental Commander or the Battalion Commander?

Captain GRIERSON: To the Staff.

General GOODENOUGH: To regulate what the section should be for that particular march?

Captain GRIERSON: Yes.

General GOODENOUGH: There is a difficulty in magazine rifle firing in using blanks in the magazine. I had not realized it before, but at some manœuvres at which I was present I said to an Officer, "You will show the force of your magazine rifle to-day." His reply was, "I am very sorry we cannot do that, because the blank does not admit of being used in the magazine." Now I think it is very important in manœuvres that we should be able to use the magazine rifle as a magazine rifle with blank ammunition. No doubt it has something to do with the weight of the cartridge. Perhaps Captain Grierson can throw some light upon that point. The use of entrenching tools is an interesting subject. We purpose to carry entrenching tools in the field, but they have not been as liberally issued for use as might be done. Would you kindly give us the name of the German Regulations for Field Service?

Captain GRIERSON: "*Felddienst-Ordnung*."

General GOODENOUGH: That would be the book in which the specification as to distance, and so forth, at which fire is effective, and at which certain precautions should be taken, would be found. It is a great satisfaction to hear that it is so short as 200 pages, and to know that one has not to wade through a lot of detail of drill in order to get at the matter which we ourselves want, because we do not want to copy the drill, but we want to know the method. I admire all that has been said very much indeed, and there is an immense deal that should be studied and followed. But, as a sort of reason or justification for the action which we sometimes

have taken, I might say that every army is dependent upon its own circumstances for its development. The tradition of the German Army, looking to the engagements in which they have been, is one of tremendous stress, of having to encounter overwhelming force, and under those circumstances such a matter as the loss which might be occasioned in firing over the heads of troops, the loss which might be occasioned by the premature explosion of a shell passing over the heads of a body of troops in front of a battery, is a thing which would be of no importance whatever compared to the advantage which the men themselves, advancing to the attack in front of the battery, would feel in being supported by the artillery in their rear. If it were, on the other hand, a case of a regiment moving against an inferiorly armed and badly posted enemy, in some savage country, the loss of two or three men in a small force, occasioned by the fire of perhaps half a dozen guns behind them, would cause a certain amount of unpleasantness in such a small force. Therefore I do not think Officers should go away and say that under all circumstances and at all times they are to rush into adopting that measure, and perhaps the same thing will apply in other cases also, unless Officers find themselves under the same conditions as the Germans, which conditions would compel them to come to the conclusion that such measures must be adopted.

Major WALTER SMITH, R.A.: I wish to speak, not by way of criticism, but rather to make use of this opportunity to call the attention of Officers who may be here to a certain paragraph, which to my mind is one of considerable importance, in which the lecturer says that the Germans adhere to their preference for the offensive attitude. We know very well that most of the other Continental armies do the same. To me, Sir, it is nothing less than deplorable that in this country alone many of the highest authorities are still to be seen everywhere, in the Press, in the lecture hall, and elsewhere, advocating the defensive attitude as the only one which is a proper and suitable one for British troops. If such be the case, the inference is one which is to my mind almost insulting to the Service to which we belong; and yet we have an instance, only the other day, of a distinguished Staff Officer giving an important lecture in Scotland, which was reported in all the papers, distinctly advocating the defensive as being the appropriate and ideal attitude for British troops. I think it is most necessary that we should remember that no campaign was ever yet won by battles fought on a purely defensive attitude; and even when that defensive attitude has something of a more or less active character engrafted on to it, those battles alone can never determine the result of a whole campaign. We can hardly, I think, be too strongly imbued with that conviction at the present day, because unfortunately the tendency which public opinion in England has for some years past taken on this question is, to my mind, demoralizing and emasculating the tactics which we teach in our schools; and on which, I fear, we base our designs of national defence. It seems to me perfectly clear that the general tendency of modern fighting, both on the defensive and the offensive, is to continually extend the amount of front that can be occupied by a definite number of men. Is it not self-evident, then, that the ultimate gain would accrue more certainly than ever to that tactician who is able to concentrate a superior force at particular and vital points of the line, while he only watches or masks others, no matter whether that line is reckoned in hundreds of miles along the whole strategic frontier, or tactically in hundreds of yards along the field of battle? This factor of modern progress, which has been too much overlooked, tends more than ever to deal the trump cards into the hands of that leader who is capable of grasping the invitation; and, if for that reason alone, the offensive attitude should be maintained in the domains both of strategy and tactics. I own, though, that the conviction has forced itself upon my mind from other and independent lines of reasoning as well. What makes it more remarkable here is that the development of the last few years, during which smokeless powder has very largely taken the place of smoking powder, has not influenced the German leaders in the smallest degree, nor, I believe, the leaders of any other Continental army, to reverse their opinion as to the relative merits of the defensive and offensive. With regard to smokeless powder, there is a question which I have asked before in this theatre, and one that I have also made the subject of frequent conversation among my own private acquaintances, but I have never got a satisfactory answer, and that is—Is the adoption of smokeless powder on the whole a

net gain to the Service which adopts it or not? To my mind the matter is still extremely doubtful. There is no doubt, I suppose, as to the benefit it confers on troops fighting on the defensive; but, if it is by our offensive action in future wars that we hope to win campaigns, is it not a mistake to adopt a powder which is a distinct disadvantage for that attitude of fighting? There are one or two other little points in the lecture which I think I had better leave to the exposition of more experienced speakers. There is one question, however, which arises from the use which the Germans make of small columns and close order. Our infantry drill allows full latitude to company Officers to make use of either of these forms in bringing up their companies when in support or reserve. As a matter of fact, however, it is hardly ever used at Aldershot or elsewhere. That is, to my mind, a grave error; but, there seems to be a sort of feeling throughout the Service that an Officer who leads his company in any other formation than extended order must of necessity be committing a great tactical mistake. The Germans must be right, I think, when they hold that you cannot maintain proper fire discipline unless you keep the men in as compact order as possible up to the very latest moment. I would desire to mention also one little point in connection with pits or epaulments for field artillery. The Germans, Captain Grierson tells us, attach more importance than ever to the rapid entrenchment of field guns. Certain Officers who have been present at Dartmoor in the last few years have remarked that the casualties suffered by the dummies representing the detachments of guns covered by pits or epaulments have actually been greater than when in the open, and I suppose the reconciliation between these apparently conflicting statements is to be found in the fact that at Dartmoor the gun-banks were usually set up upon open ground, while the dummies in the other cases were for the most part concealed behind irregularities or folds in the ground, or that the ranging became far more difficult in the latter case than in the former. I do not think that the question of the value of artificial cover for guns has been thoroughly threshed out yet. I mention the point, therefore, as one demanding at present some caution; since otherwise we might carry away to-day some exaggeration of view as to the value of cover for field artillery.

Major W. L. DAVIDSON, R.H.A.: I had it in my mind to ask the lecturer one question, which has been partially answered by General Goodenough. He describes how the German infantry passed through the line of guns, which ceased firing whilst they were actually passing, but recommenced firing after the infantry were 100 yards in front of them. I should like to know whether he is aware of such a case having happened in actual war, or where the ammunition was not blank ammunition only, and whether he considers it probable that the Germans would employ the same process with live shell.

General Lord CHELMSFORD: I rise to continue the discussion, because I think we ought not to leave the matter as it stands at the present moment. With regard to what Major Smith has said as to the defensive and the offensive, I think we must be careful not to run into the extreme of laying down that our Army is invariably to be employed on the offensive. We must remember that in the Peninsular War the Duke of Wellington almost invariably acted upon the defensive at the beginning of the action, and assumed the offensive after the attack had been well shaken. My own impression is, that as we have always looked upon our soldiers as being able to stand a great deal of pounding, more, perhaps, than most other nations, it would be a mistake to ignore that system of tactics, particularly as we are certain to take the field with a, comparatively speaking, small number of troops. At the same time I entirely agree with Major Smith that it would be a great mistake to act purely on the defensive. I think what is called the offensive defensive system has proved very successful in a great many of our most celebrated actions in the Peninsula, and in modern times we can also point to the field of Inkerman, which was fought by us in that way. With regard to the employment of the infantry in the attack, I was glad to see that the Germans have abolished the rushes. When I had the honour of commanding a brigade at Aldershot, I set my face distinctly against these rushes as tending to completely exhaust the men before they had got to the crucial part of the attack, when the last final charge had to be made. I believe that many thought I was an extremely slow brigadier, and did not work my brigade according to modern ideas at all; but gradually opinions have come round,

and it will be now, I hope, admitted that you cannot advance over 800 yards of ground by rushes without what is vulgarly called "pumping" your men to such an extent as to dangerously imperil the success of the attack. Another point adopted by the Germans, which I have always advocated (and which is to be found in a paper of mine which this Institution was good enough to publish, viz., a lecture delivered in India in 1872),¹ is that a modified line formation is the most advantageous for the attack, half battalions advancing supported by the fire of the other half halted. When the late lamented Lord Napier of Magdala entrusted me with the command of the camp of exercise at Roorkee in 1874, that was the system of attack formation which I carried out, and I believe it will stand the test of modern warfare better than any other. We have for many years been overpowered with different systems of infantry attack, but I am satisfied that the closer we stick to the original line formation the better we shall come off in any future war we may be engaged in. A line of formation is the worst target artillery can have to fire at, as the lateral deviation of artillery is of course far less than the longitudinal deviation, and therefore the thinner your formation in advancing, the less loss you will sustain. The more also you can keep your men in compact formation, the more control you have over them, and the more likely you are to get them over ground swept by a heavy fire. I believe that the extended formation, if carried to excess, is extremely disadvantageous; it does not save your men from such loss from infantry or artillery fire as would compensate for the loss of control which such a formation renders inevitable.

Lieutenant-General DUNNE: As we have slightly wandered from the original starting point into the question of the attack, brought up by Major Smith, I may perhaps say that you, Sir, were present a little while ago when some of those who are connected with the emendation of the future Drill Book, and among them Colonel Slade, said that there was to be no attack drill in the future—that, like the Germans, it was proposed to leave everybody to attack after their own individual conception of the best way of doing it. When other speakers on this subject added a hope that in the new Drill Book that was coming out for us there would be no drill of attack at all, I ventured, as an old brigadier of infantry, to remonstrate, and to say I thought there must be some slight rules left to guide everybody, because, as Lord Chelmsford has said, we have been so overwhelmed with theories and continual changes of attack that if any three leaders of battalions to-day were put under the command of a Brigadier, and they were left to their individual notions, I believe it might cause very considerable difficulty, and no unity of action would result if each man was allowed to carry out his own ideas. With regard to what Lord Chelmsford said about the line movements in India in 1874, I remember almost precisely at the same time practising at Aldershot almost similar attacks with my old chief in those days, Sir Daniel Lysons. He was one of the best drills, almost the very best, that ever commanded at Aldershot, both as Brigadier and General, and he held very strong views, almost similar to those mentioned by Lord Chelmsford, on this subject. Major Smith mentions the fact of our troops invariably attacking with their reserves and supports falling in open order. That has been a good deal owing to the nature of the country absolutely necessitating open order. Those who command the supports and reserves should use their discretion, and, if possible, without making a tremendous target of the troops, the commanders should always keep them close together, but at Aldershot and other open places it would be impossible to do so. At Portsmouth last week the Volunteers in one instance were brought up in line and halted within 700 or 800 yards of a work where men on a glacis could lay their rifles on a natural rest ready to receive them. In such a case it was absolutely necessary to have as open an order as possible to make it more difficult to shoot them down. With regard to the rushes, I agree that, for drill purposes, perpetually drilling men to rush is, as Lord Chelmsford and Major Smith say, and I believe the lecturer will also say, a great absurdity. No doubt, if the attack is carried on entirely in that way, the younger soldiers, at any rate, must come up more or less demoralized, out of breath, and altogether

¹ See Journal, vol. xvii, No. 73, 1873.

knocked about. But surely there are many occasions when moving over rough and uneven ground a rush is an admirable thing; and again I say these matters should be left in a great measure to the discretion of those who are leading the troops at the moment. It will not do, therefore, to say that there never is to be a rush, and that they are to imitate the Germans, according to the lecturer, and always to go at a quick step and nothing else, and always to keep in line. There may be an undulating piece of ground, and by a rush of 20 or 30 yards they may get completely covered by the ground and get into a safe place. Surely on such occasions as these and many others "a bit of a rush" is a good thing.

Mr. J. R. MACDONNELL: Might I ask the lecturer if he can explain how the Germans, if we are to read their Drill Book strictly, manage to work so few "points," apparently very much fewer than those considered necessary in our English system? It is rather a puzzle, I think, to read the German Drill Book, and see there is very little, if anything at all, about "points" for any formations.

General DUNNE: I quite agree it is desirable that our magazine rifles should be able to use "blank," but unfortunately the lecturer says our blank ammunition is not adapted for our new magazine. It appears that the lecturer will tell you that the Germans use wooden bullets in their blank ammunition.

General GOODENOUGH: In the case of garrison artillery, in places where shot cannot be fired, where we want to fire the guns and see the behaviour in recoil of the guns, we use the so-called dust shot. It was being used in my presence the other day, and the utmost it could do was to knock over an old plank at 200 yards, and I am not at all sure that the concussion would not have knocked it over, and I do not know that there was any single mark made upon the plank.

Colonel W. J. ALT: I might say with reference to the question of blank ammunition, that I found the same difficulty with it in working my machine-guns when I first started them. In the machine-gun, like the new magazine rifle, the mechanism is constructed to allow the fully loaded ball cartridge to drop by gravity or be forced by a spring into the breech. In using blank ammunition, we were constantly having jams and difficulty, not from any defect in the mechanism, but from the fact of the cartridge being so light. I am, however, now supplied by the Maxim Nordenfolt Company with specially made cartridge cases so weighted that they act to all intents perfectly, and with a little care in manipulating the gun so as not to fire quite as rapidly as we should with service ammunition, we never have any trouble. I take it that the same thing can be done with the magazine rifle. If I might further venture, as an Officer of Volunteers, to make one observation upon the attack formation, I would say, that so far as my theoretical studies and practice on the mimic field go, I quite agree with Lord Chelmsford in thinking that we certainly must come to the attack in line. From having taken part regularly during eighteen years in Autumn and Easter Manœuvres, I think we must come to a formation such as that indicated by Major Smith and Lord Chelmsford, but with this addition, which perhaps Lord Chelmsford intended to allude to, viz., that the fighting line should be preceded by the old-fashioned swarm of skirmishers. I think a skirmishing line in front should occupy the attention of the enemy, and of course for this purpose smoking powder would have an advantage over smokeless powder. The attacking lines would then be able to come up by the advance of half battalions at a time, with much more effect than if left to carry on the advance without these skirmishers in front. We all know the difficulty there is in getting a company to make a steady advance by alternate half companies or sections, and I think in the noise and confusion of a fight there would be some difficulty in getting a half battalion at its war strength, and with casualties taking place, to keep its formation, unless there was something to attract the enemy's attention in front. I am, therefore, in favour of a line formation preceded by skirmishers.

Lord CHELMSFORD: In my paper in 1872 I advocated the use of skirmishers in front.

General DUNNE: If now-a-days they could have Colonel Crease's newly-invented smoke ball it would be a great assistance to skirmishers. The worst of it is the wind might not suit for the smoke ball.

General GOODENOUGH: I dare say the lecturer will say something as to th

skirmishers. I think the point of his remark about the German lines was that, instead of the line being split up into many fractions, they bring forward whole battalions or half battalions in line and reach the position, so bringing a large front of fire power to bear. The whole thing resolves itself into the question of "front of fire," and the amount of fire you will be able to throw into the enemy's position.

Colonel T. FRASER, R.E.: I would ask the lecturer whether he observed any inconvenience to the troops from the use of smokeless powder. I know from shooting with this kind of powder the gas does occasionally punish you severely, if the wind blows it into your eyes. I should like to know if the artillery or infantry were observed to suffer in any way from this.

The CHAIRMAN: I think, perhaps, I could answer Mr. MacDonnell better than the lecturer, and give him the reason for the Germans doing almost entirely without points. I do not know whether everybody here knows the difference between an English and German company. A German company has on the war footing 250 men: that and the squadron, which is the unit to which I paid the greatest attention whenever I could get an opportunity, is so thoroughly drilled by its own Captain, that it becomes a body of itself, and the Officer commanding the battalion or regiment of cavalry has really very little to do. His units are so thoroughly under the command of those who lead them that they come up to their appointed places led by the intelligence of their Commanders, and without the necessity of those foolish points that we stick out, and which to my mind are about the greatest nuisance one can possibly have. There are a great many things I could mention because I have no hesitation in confessing that after twelve years' experience of the Prussian and German Armies, I am a very great admirer of their system. I am aware that there are faults in it, but all those faults are most carefully considered out and remedied at the earliest possible opportunity. The yearly manoeuvres there, as Captain Grierson knows, who had three times the opportunity of judging, are really schools of war, and one might almost say that they practise nothing there but what they intend to carry out in the field. The first thing that struck me in 1865, at the first autumn manoeuvres I attended, was the extraordinary marching powers of the Prussian troops to which Captain Grierson has emphatically alluded at the very commencement of his lecture. At that time they were horribly shod in my opinion, but the marching that I observed during eleven years of my life was something that fairly took the breath from me. I attribute that almost entirely to what Captain Grierson says, to their practising in peace, or rather during the drill season of the year, the things that they practise during the autumn manoeuvres and in war, constantly inuring the men to march with the same burdens which they carry at other times; and also, and this is a matter that I have looked into very carefully;—I had a very great friend commanding one regiment of the Guards, who kindly did me many good services, and we had a good deal of conversation on that very subject—due also to the hardness of the foot of the German peasant. He is a good deal in the habit of knocking about at his work with wooden soled slippers without heels, and his foot gets so hard that I do not think he feels the treading on hard roads in the way that our men do. Besides that they wear no socks, and very bad, I think, the infantry sock was in the days when my friend General Erskine and I were Subalterns of infantry together. It was about the most abominable invention I know; an ill-made sock is the worst thing you can possibly put on your feet. I dare say Captain Grierson may have acquired some information on the subject lately. In my time they hardly ever used socks, but their feet were wrapped in what they called "Lappen," and these were taken off every day, and washed if necessary or otherwise cleaned—oiled, perhaps, and put on again. There was no chance of a crease, at any rate unless a man was careless in putting them on. They certainly had many fewer sore foot men in proportion than we had when I was an infantry soldier in our Service. I cannot speak too warmly of the lecture, which I have twice read most carefully through, and, in fact, I do not know that it is necessary for me to make any further remark. Infantry Officers have spoken about the rushes, which were not an invention of my days but of a good many years later. I think there is one thing that has raised in my mind ever since 1870 very considerable doubt, and that is whether this enormous increase in the proportion of

guns to battalions is not likely to prove cumbersome. There is no doubt that on the march, the greater the number of the guns longer and for the infantry the slower must be the move forward. They take up a great deal of room, and you cannot push them out of the way. You can put infantry to the side of the road, and let the artillery have the road to itself; but if you are actually marching on roads, and require the troops to be accompanied with large masses of artillery, of course the longer the columns, the more difficult it will be to get the troops forward. I think that is really all I have to say, because what I have to say further will come better after Captain Grierson's reply.

Captain GRIERSON: I am very much obliged for the kind things that have been said about the lecture, and all I can do is to answer one or two points which have been raised. First, about the sections. The roads must be previously thoroughly reconnoitred by the staff, and orders then given out as to the maximum front which can pass through the narrowest defile; that is, the number of men in the front of the section is separately indicated for each particular march. They are wheeled up accordingly, and closed up. Of course that front is entirely determined by the width of the narrowest defile. Then, as to the blank ammunition, in each cartridge there is a small bullet made of the red wood that the German toy-boxes are made of—a very light and fragile wood. This is blown away at the muzzle, and at a distance of twenty or twenty-five yards from the muzzle of the rifle there is practically no danger at all. Then as to the rules about the distances at which the fire is effective. These are in the Umpire Rules of Part II of the "Felddienst-Ordnung," under the head of "Regulations for Autumn Manœuvres." As to the artillery firing over infantry, I do not think that the Germans by preference fire over the heads of infantry, but they, on principle, practise everything in peace that they would have to practise in war. In war the lines of guns will take up such an enormous extent of ground that there is really no other way for the infantry but to pass through them. Naturally in such a case the artillery must fire over the heads of the infantry, and, equally naturally, it would begin to fire as soon as the infantry had got sufficiently far to the front. I cannot point to any case in actual war in which the artillery has fired in that way, as I have not one in my mind at this moment, but I have no doubt that it will in future do so. Of course if they can get a position in which the guns can fire on the enemy without firing over their own troops, no doubt they will occupy it, but it will be difficult to find such positions. Then as to the inquiry into the question of British troops acting on the defensive, I think that whether the defensive or the offensive is the stronger form of fighting, it is hardly a matter to lay down rules or to formulate upon. It seems to me most probable that you are forced either to assume the one or the other, and that according to your strength you will fight on the offensive or defensive. No doubt British troops have habitually acted on the defensive at first, and afterwards assumed the offensive, and they will probably be able to do so again. The Germans follow their traditions in this matter, and no doubt our troops will do the same. But, after all, the circumstances of the moment will determine whether the offensive or the defensive is to be taken up. As to smokeless powder being a gain or not, it seems to me that if your enemy has smokeless powder, and therefore has an advantage in defence, you will lose an advantage if you have not got it too. One nation having it, other nations will have to adopt it. Others have it and we must have it too. Then as to the question about the rushes. I think General Dunne said that it should not be laid down that rushes were never to be used, as rushes came in very handily sometimes. What I said was that the Germans move as a whole at the "quick," but I added that rushes were employed where specially dangerous zones had to be passed, and they were expressly discouraged in the regulations. Of course rushes are allowed if there is any advantage to be got from them, but the Germans only use them quite exceptionally. Colonel Fraser asked whether the new smokeless powder caused inconvenience to the men. It was at first reported that it smelt abominably, but I rather think some modifications have been made, for last year, as far as I know, there were no complaints whatever about the powder. I think some modifications must have been made, but of course it is kept secret, and one cannot say.

Colonel FRASER: The men did not suffer in the eyes?

Captain GRIERSON: No, they made no complaints.

The CHAIRMAN: It was very bad in 1889.

Captain GRIERSON: Yes, they complained a great deal then. I am very much obliged to you, gentlemen, for the kind way in which you have received my paper.

The CHAIRMAN: I do not think there will be any dissentients when I call upon you to give Captain Grierson your very warm thanks for the admirable lecture he has given us, and now I can express the regret that it was not longer.

Friday, April 10, 1891.

LIEUTENANT-GENERAL A. J. LYON-FREMANTLE, C.B., Deputy
Adjutant-General for Auxiliary Forces, in the Chair.

THE EDUCATION AND TRAINING OF INFANTRY MILITIA OFFICERS.

By Captain R. HOLDEN, 4th Battalion Worcestershire Regiment.

THE CHAIRMAN: I am very glad to find myself on this occasion amongst an assembly of Militia Officers. I have heard rumours, I hope not very widely extended, that, on account of the supposed greater popularity of the Volunteers, the Militia is sometimes rather neglected at the War Office. Now, if that is so, I must, on behalf of His Royal Highness and of the Adjutant-General, repudiate it to the utmost extent of my power, and in the strongest language that I can use. As regards myself, I can only say that if His Royal Highness, or the Secretary of State, suspected for one moment that I looked upon the Militia with anything but the greatest sympathy, my position at the War Office would have been perfectly untenable, and I should not have kept it as long as I have. I think I may appeal to many of the faces I see here, gentlemen who have done me the honour to call upon me at the War Office, and I may ask them whether, under any circumstances whatever, I have shown any want of sympathy with the Militia. I hope I have endeavoured always to meet any Militia Officer's views as much as I could, and to do all that was possible for the advancement of that Service. With regard to the civil side of the War Office, of course I know perfectly well that all branches of the military Service are rather like the daughters of the horse leech, crying always, "Give, give;" but I think that the Secretary of State has quite lately shown sympathy with the Militia by increasing the Militia Estimates by 50,000*l.* a year. With these few remarks I will now introduce Captain Holden, a very enthusiastic Officer, I may say, of the Militia, who is so zealous that, not content with his Militia work, he has become Adjutant of the 1st Cadet Battalion of The Queen's (Royal West Surrey Regiment), a battalion which is doing most admirable service, and from which I hope the Army may derive great assistance on account of popularizing the Service amongst the lower classes of our London population.

I FEEL that it is more than venturesome for an Officer of my age, rank, and limited experience to undertake to read a paper on a subject of such importance as the education and training of Infantry Militia Officers; but I have been induced to do so for two reasons—first, because, notwithstanding its increasing importance, the subject has never been thoroughly discussed in this Institution; and, secondly and principally, because a great deal has appeared within the last few months in professional magazines and newspapers on the alleged *want* of military education on the part of Militia Officers generally. While I am convinced that, in these progressive days, a far higher

standard of professional knowledge can easily be obtained with advantage to the Officers themselves and the Army generally, I hold an equally strong opinion that Militia Officers as a body are not so deficient in military education as some of our friends would have the public believe.

I lay claim to no special qualification of any kind for the task which I have undertaken; but I venture to hope that, if my lecture is the means of bringing forth remarks and suggestions from those who can speak with authority on the subject, I shall be considered to have justified my appearance here.

It is not so many years ago that the necessity for military education was first acknowledged in England. It appears to have been an article of faith that the trade of soldiering was one which required no previous training—in fact, that the soldier was born, and directly he donned the red coat became at once impregnated with those qualities and that knowledge which in other professions had to be acquired by hard work and study. In recent years considerable advances have been made in the education of Officers, and the Militia has improved with the rest of the Army; but it is not sufficient to say that the professional qualifications of Militia Officers have very much improved in recent years. We require to know what part the Militia will be called upon to play in the event of hostilities—whether the Officers are in possession of a sufficiently high standard of qualification to enable the command of the Force to be left with confidence in their hands, and, if not, what steps it is advisable to take to ensure their better education.

In explaining the duties which the Militia will be called upon to undertake in the event of embodiment, it is unnecessary to repeat the oft-told, but soon forgotten, tale of how well the Force has served the State in years gone by; to dilate on the unanimity with which whole regiments have volunteered for foreign service; and on the patriotic spirit with which the whole Force is undoubtedly animated at the present time. We know that the Militia will be embodied upon any "imminent national danger or great emergency," and in the event of invasion the regiments would be called upon as they stand, and would be used in the first line as an integral part of the defensive forces of the country. In the opinion of the military authorities, no military expedition could be sent abroad and maintained at its fighting strength in the event of the country being engaged in a serious foreign war, without the embodiment of the Militia. The idea of the present organization of the Army is that whenever an important expedition is despatched abroad, thereby necessitating a considerable number of our territorial regiments having both Line battalions away from the country, the Militia would be at once embodied. The normal constitution of a territorial regiment being two Line battalions, two Militia battalions, and a depôt, both Militia battalions would be embodied in those regiments which had two Line battalions abroad, one Militia battalion in those which had one Line battalion abroad, and the depôt would be raised to the strength of a battalion. The troops at the seat of war would then be fed by their own Militia battalions at

home, to which all recruits would be passed from the *dépôt* as soon they were capable of bearing arms, and for which all enlistments would be for general service. The Militia battalion would thus perform for the troops on active service functions precisely analogous to those which in peace time the home battalions perform for their twin battalions in India or the Colonies, and would actually become in all senses a part of the Regular Army; within, of course, the limit that they cannot, by present Act of Parliament, volunteer for service beyond the Mediterranean.

In fact, it amounts to saying that upon embodiment the Militia becomes part and parcel of the Regular Army, and that the Officers will have to perform precisely similar duties to those required from Officers of the Line. The question then arises, are the Officers with their present system of education and training sufficiently well educated professionally to perform those duties? The War Office authorities apparently think so. The fitness of a Militia Officer for his duties is tested, as in the Regular Army, by the promotion examinations. These are as follows:—

A Subaltern, unless he has previously served in the Regular Army and passed the examination for the rank of Lieutenant, is required, during the first year's service from the date of his appointment, to attend the annual training of his battalion, to undergo the course of musketry as laid down for recruits, and to pass an examination in the undermentioned subjects:—(a) The various formations and movements prescribed in the first two parts of "Infantry Drill;" (b) the duties of commanders of guards, together with the mode of marching reliefs and posting sentries; (c) the duties of regimental Orderly Officers and of Subaltern Officers; (d) the system of pay and messing in the Militia; (e) Practical examination in rifle exercises, aiming, and firing exercise. If an Officer fails in obtaining a certificate in these subjects, he is examined again within six months, and, in the event of a second failure, is required to resign his commission. To enable Officers to acquire practical experience in their duties and pass the required examination, they must, during their first year's service, undergo two months' instruction either at the preliminary drill of their battalions, at the headquarters of a regimental district, with a battalion of the Guards or Line, or at a school of instruction; or they can attend for one month at either of the three first-named courses, and a further period of a month at a school of instruction. It is well known that a very large proportion of Subalterns in the Militia are candidates for commissions in the Line, and that, generally speaking, they possess a higher standard of theoretical professional knowledge than the *bonâ fide* Militia Subaltern who joins the Militia with the idea of remaining in it. Candidates for the Regular Army to be successful have, in addition to passing the professional examination already alluded to before the end of the second training, to pass what is known as the "preliminary" and the "further" literary examinations before the Civil Service Commissioners. If successful in these, and recommended by their Commanding Officers, they are admitted up to the age of 23 to the competitive examination in

military subjects, which embraces fortification, military topography, the elements of tactics, and military law, in each of which they must obtain 0·25 of marks and 0·5 of the aggregate.

Before promotion to the command of a company, a Subaltern must pass an examination in (a) practical company drill, and command of a company in battalion; (b) formation of advanced and rearguards, principles and practice of skirmishing and the attack; (c) certain sections of the Army Act, Rules of Procedure, Appendices relating to General, District, and Regimental Courts-Martial, Section 6 of the Queen's Regulations on the subject of Discipline, and Sections 7 to 28 of the Militia Act of 1882; (d) Regulations respecting the Service and Bounty of the Militia and Militia Reserve, Issue of Clothing and Necessaries, Lodging and Billet Money; (e) Duties in Camp, Barracks, and Billets; (f) Chapters III and IV of the Regulations for Musketry Instruction, and the Regulations for the Militia relating to Musketry Instruction and Prizes.

Captains before promotion to the rank of Field Officer must pass an examination in the following subjects:—(a) practical battalion drill, the command of a battalion in brigade, advanced and rearguards, the duties of mounted Officers, manœuvre and route marching, riding, skirmishing, and the attack; (b) the proper mode of demanding supplies of ammunition, food, and forage, also the system of regimental orderly room work, and the proper channels of correspondence.

In addition to these compulsory examinations, all Militia Subalterns who are not candidates for the Regular Army are entitled to attend a two months' course at the School of Musketry, which is in every respect the same course which Officers of the Regular Army are required to attend. After their first year's service they may also attend a school of instruction at Wellington Barracks or Aldershot, receiving the pay and allowances of their rank in both cases. Captains may also, to a limited extent, attend both these courses and receive pay and allowances. Militia Officers may also, at their own expense, present themselves for examination in signalling, tactics, military law, field fortification, and military topography at the same time, and on the same conditions, except as regards pay, as Officers of the Regular Army; they may also attend a garrison class or signalling course.

The number of Officers in the Infantry Militia who have attended a voluntary course at a school of instruction is 450; the number who have passed in tactics is 133; 265 have obtained certificates at the School of Musketry, Hythe; and some 10 have passed in signalling. This calculation takes no account of the very large number of Officers who have been attached to Line regiments and regimental depôts for duty; of those employed in Colonial regular or irregular forces and police; or of those who have passed a garrison class, and have qualified in fortification, topography, and military law. Of the 127 Officers commanding battalions of Infantry Militia, 63 have served in the Regular Army, and others have served with their regiments on embodiment. Of Captains and Field Officers effective on 1st March,

no fewer than 270, or more than 20 per cent., have served previously in the Regular Army; and 10 per cent. have seen active service either as Regular or Militia Officers.

I think you will admit that the compulsory examinations alone present a very fair test of the Officers' capabilities, not only of practical military work, but of interior economy; a test which all Officers now serving, except a very few appointed as Captains prior to 30th October, 1871, have successfully passed; and that taken with the additional statistics they are a sufficient proof that Militia Officers are not so devoid of professional education as some critics allege. For not only do they possess every qualification which the authorities demand of them, but a large proportion have over and above that gone out of their way to qualify in special subjects, regardless of inconvenience and sacrifice of time, and at their own expense.

But though they may be fairly efficient and qualified to perform the duties required of them, it must be admitted that there is still room for very great improvement. These are days of progress, days in which great strides in the matter of professional education are being rapidly taken in the Regular Army and auxiliary forces, and the time would appear to have arrived for Militia Officers to take a step forward also. This I am perfectly certain they are all not only willing, but anxious to do, if the Government will only show that it is in earnest in desiring of them a higher standard of professional education.

Let us take the several examinations which Officers are called upon to pass, from Subaltern upwards, and the courses open to them. A recruit Officer, in addition to attendance at the annual training and the recruits' musketry course, has, as already noticed, the option (1) of being attached for two months' instruction to either a regimental depôt, (2) to a battalion of the Guards, (3) or Line, or (4) he may attend the preliminary drill of his own battalion; or (5) he may attend for one month at either of these, and a second month at a school of instruction. It may be a matter of opinion as to which of these courses offers the best opportunities for acquiring professional knowledge; though I think that there will be a consensus of opinion to the effect that a regimental depôt, unless a very large one, is the least desirable course to which to send a young Officer; the opportunities there afforded rarely extending beyond the drilling of a few recruits, and the experience of duties being not unfrequently confined to a barrack guard of one sergeant and a couple of privates.

(2.) In the case of the Guards it can scarcely be considered as being attached to a regiment, because the Militia Subalterns do not live in barracks, are not attached to the mess, and learn next to nothing of regimental life or interior economy; while it not unfrequently rests mainly with themselves how much drill they shall even learn. If the Guards, however, do insist upon real work, there is no doubt that the drill is perfectly taught.

(3.) With a battalion of the Line a young Officer cannot fail to benefit; he is bound to obtain, in addition to a knowledge of drill, an immense amount of useful information not to be learned from

books or at a school of instruction. He is not merely attached to the regiment in name, but in reality, for he lives in barracks, dines at mess, takes his tour of duty, is taught the various duties of an Officer, and the interior economy of a regiment. If after a two months' course, he does not leave with a considerable acquaintance with drill and an insight into regimental duties, it will be due either to his own laziness or incapacity, or want of system in the regiment to which he is attached. I have heard young Officers complain that there was no definite course laid down for them, and that they were allowed to scramble through the two months with but a smattering of knowledge. Though this must to a great extent be left to the Commanding Officer and Adjutant of the Line battalion, I am disposed to think that, if a regular course of instruction were laid down for each week a young Militia Officer is attached to a Line battalion and rigidly adhered to, it would be a great advantage.

(4.) Another alternative open to the recruit Officer is to attend the preliminary drill of his own battalion, a course which I consider to be out and out the best school of instruction for a young Officer. I am very much impressed with the importance of imparting education to young Officers, as far as possible regimentally; where they have more opportunities of learning their duties, and, as a rule, do far more work and are taught it more thoroughly under their own Officers, Adjutant, and Staff. In this manner they acquire a regimental feeling of *esprit de corps*, and a love for their regiment; they get their first instruction in it, and it associates them for ever with it as their military home, and they are brought up, as it were, in the family. It associates the Officers with the men, and the men with their Officers. But in recent years the system has been shorn of many of its advantages in consequence of the substitution, to a great extent, of the drilling of recruits on enlistment, for the old preliminary drill prior to the annual training. This is felt in more ways than one, because the number of Officers allowed to be called up for duty depends upon the number of recruits, so that the drilling of recruits upon enlistment practically militates against the efficiency of the Force, because it destroys the source of instructing the young Officers.

On the whole, however, I think that the present regulations work very well so far as the instruction of the recruit Officer is concerned; and that the instruction is fairly complete and satisfactory.

Of the schools of instruction I shall speak later on.

With regard to the training and education of the Subaltern Officer before promotion to the rank of Captain, the examination which he is compelled to pass has already been given; but I think that Officers are promoted to the command of companies in the Militia long before they can be expected to be sufficiently experienced in dealing with men. The Militia regulations lay down that "Subaltern Officers who have not previously served in the Regular Forces must, unless under very exceptional circumstances, have served three trainings in order to be eligible for the rank of Captain." I believe that many Officers will agree with me in thinking that three trainings is far too short a period of qualification for the rank, and that the great ease with

which the rank of Captain can be obtained in the Militia has the effect of lowering the estimation in which it is held by Officers in the Army. Indeed, it is quite a common occurrence to see mere boys of twenty years of age gazetted to the command of companies, while in the Regular Army, where the Officers are perpetually on duty, it is perfectly impossible to obtain promotion in so short a period; and, considering that the youngest Captain in the Militia takes rank and precedence before the oldest Subaltern in the Army, I think it is most undesirable from all points of view to lower the rank by rendering its attainment so ridiculously cheap. I am of opinion that a thorough experience of regimental duty is of the highest importance in educating and training an infantry Subaltern; and I would remind Officers of the words of the general order issued to the Army on the death of Sir John Moore: "Sir John Moore from his youth embraced the profession with the feelings and sentiments of a soldier; he felt that a perfect knowledge and an exact performance of the humble but important duties of a Subaltern Officer are the best foundations for subsequent military fame. . . . In the school of regimental duty he obtained that correct knowledge of his profession so essential to the proper direction of the gallant spirit of the soldier." I consider the command of a company in the Militia to be one of considerable importance and responsibility; and, holding that view, I am of opinion that, under no circumstances, should a Subaltern, unless he shall have served at least two years in the Regular Army, be considered eligible for promotion to the rank of Captain until he has served at least six trainings, and passed a more severe examination for the rank than is now required. The examination for the rank of Captain, so far as it goes, is all very well, but it does not go far enough, it is too rudimentary; and I should propose (1) that, in addition to the present examination, a Subaltern should be in possession of a certificate from the School of Musketry, Hythe, because I think it is of the greatest importance that we should in the Militia, by gradual process, establish the system which prevails in the Regular Army under which the Captain is the instructor of musketry to his company. (2) I should require a Militia Subaltern to pass the examination in tactics required of Subalterns in the Army before promotion. Some Commanding Officers have already made it a rule in their regiments, and I hope they will favour us with their opinion as to how the system works. (3) I should require him to obtain a certificate from a school of instruction, but not in the same course that prevails now, because I consider it hardly suitable to the requirements of the Militia. I think if the qualifications for the rank of Captain were raised in this manner it would not deter one single Officer whose services are worth retaining, while it would make the examination a stern reality and an indisputable proof of an Officer's fitness. I consider an inefficient Subaltern to be worse than none at all, and paying him a waste of public money; and I, as a Captain, would far sooner carry on the work of the company alone than have attached to me a young gentleman not thoroughly up to his work.

The question of the promotion of Officers from the rank of Captain

to that of Field Officer I hold to be one of still greater importance; and, considering the large number of eligible Officers retired from the Regular Army who are willing and anxious to accept commissions as Field Officers in the Militia, I am strongly of opinion that the qualification for the rank should be very considerably raised. The present examination is out of all proportion to the importance attached to the position, which, upon embodiment, becomes evident, and upon active service would be forcibly illustrated.

I don't think that any Captain should be eligible for promotion to the rank of Field Officer until he has served at least six trainings in command of a company; has obtained a certificate from the School of Musketry at Hythe; has passed the examination in tactics required of Officers of a similar rank in the Army; and has obtained a Field Officer's certificate from a school of instruction. I should permit each of these subjects to be taken up separately, and to be extended over the six years; and propose that Officers be granted the pay and allowances of their rank while undergoing instruction. The position of a Field Officer, with the probable eventual command of a battalion, could then by no possibility become a sinecure.

Although it scarcely comes within the scope of this paper, I have been asked to refer to the case of Adjutants of the Militia. I am not aware that any question has arisen with respect to their professional qualifications, but gather that an opinion is prevalent amongst Commanding Officers that the present system under which Officers of the Army are appointed to the Militia for five years as Adjutants has not been found to work altogether satisfactorily. It is not with the individual that fault can be found, but with the system, and particularly with the system as it affects battalions whose headquarters are situated at the headquarters of the regimental district. Upon the Militia Adjutant depends to a very great extent the welfare of the whole Militia service, and the efficiency of the Officers; and whether it would be preferable to revert to the system of appointing retired Officers, allow Army Officers to go on permanent half-pay to take up Adjutancies of Militia for ten years, or appoint properly qualified Militia Officers, I am not prepared to express an opinion; I may, however, perhaps be permitted to go so far as to say that what Commanding Officers appear to require is an Adjutant who shall be their Adjutant not for one month in the year only but for twelve months in the year. I trust that Commanding Officers may express their views upon this point.

The next point to be considered in this paper is the various voluntary courses of instruction which are placed at the disposal of Militia Officers, and which I should like, as far as possible, to make compulsory, these are:—(I) Hythe, (II) schools of instruction, (III) tactics, (IV) signalling, (V) fortification, military law, and topography.

I. *Hythe*.—I must admit that the greatest advantages which have accrued to the Militia in recent years have been in connection with musketry; and the whole Service is, I am sure, grateful for the introduction of the regulation under which all Subalterns of Militia, whether they have in view the musketry instructorship of their battalions or not, are permitted to attend a course at the School of

Musketry, and receive their pay and allowances. This cannot fail in time to prove of the greatest advantage to the Force, as it must have the effect of gradually leavening the senior ranks with men experienced in the Hythe system, and so removing that prejudice against musketry which even now exists in some battalions. The only drawbacks in so far as the system affects Militia Officers, are that the accommodation at Hythe does not always admit of all applicants being allowed to attend the course, and that Captains are to all intents and purposes not permitted to go. The requirements of the Regular Army must, of course, be first attended to; but I venture to suggest that the formation periodically of special courses at Aldershot limited to the Militia, at which accommodation could no doubt be found for sixty Officers at a time, might dispose of the first difficulty. The question of the Captains is far more important. Under present regulations Captains are only permitted to proceed to Hythe with the view of their appointment as Instructors of Musketry, and upon a certified statement that no Subalterns are available. I should like to see this rule altered. I consider it of the utmost importance to the efficiency of the Officers and rank and file that the Captains of companies should be in possession of a Hythe certificate. I may be told that that is what the authorities are endeavouring to introduce gradually, which is, no doubt, the case; but it must be apparent that under this regulation none of the present Captains in the Militia can ever hope to qualify in musketry. I think that they, to commence with, have the first claim, apart from its being of greater importance for them to be in possession of the certificate than Subalterns; and I would therefore suggest that the regulation under which Subalterns are permitted to attend at Hythe be temporarily suspended until all Captains have had the option of going through a course. This need entail no extra expense worth speaking of.

II. *Schools of Instruction.*—I think that one of the first things to be done is to alter altogether the present system of instruction at these schools. I am strongly of opinion that, constituted as they are at present, they fail to satisfy the requirements of the Militia, and I know that this opinion is held by many Officers, especially by the senior Officers who would be anxious to go were the course a more advanced one. No one will, I hope, for one moment imagine that I think that Officers are indifferently taught at Wellington Barracks or Aldershot. I have had experience of the Wellington Barracks school, and in my humble opinion the instruction imparted there is, as far as it goes, perfect; and I can conscientiously say that I learned, thoroughly, more drill there in one month than I learned before or am ever likely to learn again in the same time. Nothing can exceed the completeness and finish of the system of drill taught there, or the earnestness and attention bestowed upon the Officers by the Commandant, the Adjutant, and the non-commissioned officers; and I am told that at Aldershot it is the same. But I consider that both schools fail to meet the requirements of Militia Officers for the simple reason that they only teach—admirably of course—what can or ought to be sufficiently well taught for all practical purposes in their own regi-

ments under their own Officers and Adjutants. I do not pretend to say that it is possible, in a month's training, with every hour fully occupied otherwise, to instil into Officers such a thorough knowledge of company, battalion, and brigade drill as is so perfectly taught at Wellington Barracks, and I believe at Aldershot. But I am one of those who, though I fully value the importance of steady drill, believe that too much importance is attached to battalion and brigade drill in the majority of Militia regiments, to the prejudice of more practical work. I admit that it is all very interesting, and very agreeable to the eye of an inspecting Officer whose warm commendation it frequently elicits. But, from a serious point of view, I am of opinion that the short time allotted to the annual training of a Militia regiment does not justify so much attention being devoted to mere parade movements and useless brigade drill, especially when, as Lord Wolseley tells us, "in respect to the battalion and brigade evolutions required during an action, the worst Militia regiment could do enough for all practical purposes."

I therefore suggest that, if the space at Wellington Barracks will not admit of it, which obviously it will not, the course at the School of Instruction at Aldershot be confined, in alternate months, to Militia Officers, and that it should embrace such training as they have not the means of acquiring in their own regiments. The four weeks' course might be arranged more in the manner of the present course of field training, and include the attack and defence of a position, fire discipline, skirmishing and attack formations, hasty entrenchments, defence of posts, advanced, rear, and flank guards, reconnoitring, and outpost duty. I feel sure that such a course would be far more attractive to Officers than the present one, and certainly far more instructive and valuable.¹

While on the subject of schools of instruction I cannot help alluding to what appears to me to be a very unsatisfactory arrangement in regard to the attendance of Officers and the question of their payment—an arrangement which is perfectly incomprehensible to the Militia Officer, as it entails no question of economy. According to existing rules, if a Subaltern attends a school and obtains a certificate, he receives the pay and allowances of his rank for the number of days the course lasts, provided that he has not done more than one month's recruit training at the dépôt, with a Line battalion, or elsewhere in that year. If he has undergone two months' recruit training in that year, he is not allowed pay when at the school, but can obtain it by waiting till the year following. In the same manner a Captain, who has already obtained the School certificate for that rank and received the usual pay and allowances, may attend a school for the purpose of obtaining a Field Officer's certificate, but must do so at his own expense. Both these restrictions appear to me to be unwise and unfair, and they bear on their faces an anomaly, for the

¹ Captain H. J. Craufurd, Grenadier Guards, the Commandant of the School of Instruction at Wellington Barracks, has very kindly furnished me with full particulars of the system of instruction imparted at his school, from which it is apparent that the course is as extended as the limited space will possibly admit.

payment is allowed in the case of a Subaltern in the following year, and in the case of a Captain, he may on promotion to Field Officer attend a school of instruction, and obtain the pay of a Field Officer, more than he would have received if he had been permitted to receive pay as a Captain. But this lapse of time frequently makes all the difference to the Service, for by the time field rank is obtained, Officers have no longer the inclination to run about at schools of instruction, be drilled by sergeants in the Army, and be required to salute Officers in the Army of the rank of Lieutenant. I am of opinion that by the time an Officer becomes a Field Officer he should have done with school; and I think the removal of the restrictions in regard to pay would have a most beneficial effect in increasing the attendance of Officers.

III. *Tactics*.—I am not one of those who fancy that a theoretical smattering of tactics and strategy is more apt to fit a Militia Officer for the efficient performance of his duties than the useful military knowledge to be acquired by a close attention to regimental training and musketry; but, surely the possession of a useful knowledge of both is not a very unreasonable or impossible aspiration. If a competent knowledge of tactics is considered essential for Officers of the Regular Army, it stands to reason that it must be an equally necessary qualification for a Militia Officer, who may, at any time, find himself in precisely the same position on active service. And I do not think it is too much to demand of an Officer promoted to the important position of a Field Officer in the Militia that he should have a competent knowledge of tactics, and be required to pass the examination in that subject required of Captains in the Army. If, however, an Officer is to be compelled to pass an examination in tactics, some payment ought undoubtedly to be made to him. At present, not only are Militia Officers not paid for the expense and trouble they incur in studying the subject of tactics, but they are actually placed in a worse position in this respect than Officers of Volunteers. In that Force a special capitation allowance of 1*l.* 10*s.* per annum is granted for each Officer who is in possession of a certificate showing that he has successfully passed an examination in tactics; and no limit appears to be placed on the numbers who may take up the subject. According to the numbers given in the March Army List, some 1,600*l.* per annum is expended in payment to the Volunteers for possessing certificates in tactics; but upon the Militia, a senior Force, not one penny is similarly expended. Surely it cannot be the intention of Government that such a one-sided arrangement should be maintained. I may be told that, like the capitation allowance for signalling, it is not paid to the Officers, but goes to the funds of the regiment. This no doubt is true, but why not grant a similar allowance to the band or mess fund of the Militia? Perhaps Colonel Walker's battalion, in which ten Officers have passed in tactics, or Colonel Hill's, in which seven have passed, would not be above receiving grants of 15*l.* and 10 guineas per annum towards, say, their band funds.

All these certificates which I would render obligatory are now

optional; but the fact that a very large percentage of Officers are content to study and obtain them, in their leisure time, at their own expense, and knowing that they give no claim to promotion is, I think, sufficient indication that were their possession made a *sine quâ non* before promotion, few Officers would be found to object; and we should establish a proper organization in place of a "go as you please" system.

What may be done is sufficiently shown by the record of one distinguished Militia battalion, in which all the Officers, without exception, pass a school of instruction; while out of a total of twenty-four Officers, ten have passed in tactics and nine hold the Hythe certificate.

IV. *Signalling*.—I fully recognize that considerable difficulty would be experienced in attempting to maintain a proper supply of trained signallers in a Force trained like the Militia. The course of instruction in signalling is a long and tedious one, and when a knowledge of the subject is once acquired, constant practice is necessary if anything like efficiency is to be maintained. Signallers, however, are considered necessary for the Regular Army and necessary for the Volunteers, and would therefore appear to be equally necessary for the Militia, unless the Force is maintained merely as a recruiting agency. On account of the great difficulties that would be experienced in training private Militiamen, I should consider their instruction in signalling as out of the question; though it might be possible to utilize many old soldiers now serving in the Force who have qualified in the subject, and keep up their knowledge during preliminary drill, when they are called up to assist with recruits. I am of opinion, however, that some one in every regiment ought to understand signalling, and that every Commanding Officer should possess in his battalion, at least, the means of communicating by signal with every part of his battalion in whatever formation it may be, and of communicating with other bodies of troops, positions, or forts, and of keeping up communications at all times on the line of march. I think, therefore, that at least two Officers in each battalion should be qualified as instructors in Army signalling, and should receive the pay and allowances of their rank while under instruction, on condition of obtaining a certificate. We shall, no doubt, be told that payment cannot be sanctioned for Militia Officers attending such a course. But why not? In the Volunteer Force, a special capitation allowance of £1. 10s. is allowed for two Officers in every corps who are in possession of signalling certificates, for every year in which they earn the ordinary capitation allowance; and yet no payment can be made to a Militia Officer. Is this quite sound or reasonable?

V. *Fortification, Military Law, and Topography*.—These subjects I should not propose to make compulsory; but I should like to see some inducement offered to Officers to study them, such as giving them the same facilities for attending garrison classes as Officers of the Regular Army possess, by granting them the pay and allowances of their rank if they succeed in passing, and by giving them a prior

claim to promotion, to military employment at regimental depôts, and on active service.

With regard to the training of Militia Officers generally, I think it most advisable that Officers should practise as far as possible the duties which they will be called upon to perform on service. One great step in the right direction has been the training of the Militia under canvas instead of the old demoralizing system of billeting; but I think a great deal more might be done in the direction of training individual companies under their Captains; and placing the junior Officers in some defined sphere of action in which their personality is allowed to find vent. In some districts there may be a difficulty in regard to space, but surely, in the majority, sufficient ground can be found for company training on a small scale. One company might go out for the day, carrying tents and rations: the men would pitch their tents, cook their rations, and go through a short course of elementary military training along the roads and public parks, the different sections acting against each other; which would be far more useful and far more interesting to both Officers and men than the monotonous routine experienced in the annual training of most Militia regiments. I think that company drill and company training should form the most important part of the soldiers' training; since in actual warfare much will depend upon the skill and intelligence of the company commander. Much also might be done in the same direction in the case of regiments whose range is situated at a distance from headquarters (as is the case in my own regiment), if the companies were detached and encamped on the range. It has answered extremely well with us, and has the effect of making all ranks take a far greater interest in shooting, besides giving the Officers a very valuable insight into the duties appertaining to individual command and its various responsibilities.

The question of finance unfortunately crops up at every point when any question of improving the efficiency of the Militia is concerned, and no doubt it is the chief drawback to many regiments experiencing the great advantages of training with regular troops at large camps like Aldershot, the Carragh, Shorncliffe, &c. Some battalions have for the last ten years trained at one of these camps, but the majority unfortunately have never, within the memory of living man, had the advantage of training outside their county towns. This, I think, should not be overlooked in any attempt to improve the efficiency of the Militia; and if the question of expense will not admit of every regiment in turn training at a camp or garrison with regular troops, surely some more large camps, like Strensall say, might be formed locally, at which the regiments of adjoining counties could be assembled together. The occasional participation of the Militia in brigade and divisional manœuvres would also be most beneficial to the Force, if it could be periodically made supplementary to steady squad and company drill—say once in every fourth or fifth year; at present the Field Officers have no opportunity of practising minor tactics; and the majority of Officers studying the subject may be said to be learning, to a certain extent, what they may

have never any opportunity of applying. The Militia is very unfortunately situated in this respect; it appears to be very easy to give the Volunteer Force the advantage of Easter Manœuvres and brigade camps, but the majority of Militia regiments have to rest content with a dull annual training year after year in their county town without variety or relief, without stimulus of any kind, unseen by General Officers, and unheard of by the general public.

In formulating any system of compulsory military education, we must not ignore the fact that there are a great many Officers in the Militia, and most excellent Officers, men of property and good family, with hereditary military instincts and fine physique, and who in their daily life develop those habits of sport and amusement which require physical strength, activity, courage, skill, and endurance—qualities which always have and always will count as important factors in actual warfare—who do not take kindly to book work or study; and I admit that their idiosyncrasies must be carefully considered before adopting any universal advanced system of education which might tend to make them dissatisfied and throw up the Militia: the gradual operation of retirements will eventually furnish a solution of this difficulty. But, speaking for Officers of my own standing in the Force, I am convinced that, taken generally, the more real you render the business of soldiering to them, and the less of a slope and a lounge, the better they like it and take to it; and the more you treat the Militia as a serious service with serious duties and responsibilities the better. Considering the monotony of an annual training year after year in some out of the way country town, it is surprising to me how many country gentlemen and retired Officers of the Regular Army are found to serve on. A Militia training is by no means the picnic which some fancy. The twenty-eight days is one continuous record of dull but hard work performed quietly and without ostentation. Though this is unknown generally, it has impressed some Officers of the Army. Lord Wolseley has testified to the zeal of the Officers. In the course of some remarks on the Army recently, he said: "I have often in the course of my duty to inspect Militia regiments, and I invariably leave the parade ground with a deep sense of how much more hardly they work than Officers of the Regular Army. I am astonished, too, to find how admirably they perform their duties, looking to the fact of the small number of days in which they have to learn them." Some of our critics have not such a high opinion of us; but I am vain enough to fancy that the hostile critics of the Militia are not to be found, as a rule, amongst those Officers who have been brought into close contact with the Force. Inspecting Officers and others who have served alongside the regiments at Aldershot and elsewhere, invariably speak in favourable terms of the zeal and energy of the Officers and men, who only want a little more official encouragement to render the Force what it undoubtedly is to my mind, the only real and reliable reserve of the Regular Army. We have enjoyed so long a period of immunity from war in this country, that there is some danger of the fact being overlooked. The Militia has served as an Army Reserve in every big war

for the last 150 years. It has been available, and has been utilized to supply the place of the Regular Army ordered on active service; it has gone on foreign service, and it has gone on active service. But its real value to the State, which in the case of a European war will become at once evident, is well nigh forgotten in the anxiety of the Government to utilize it for one purpose only—a purpose for which it was not originally intended—that of feeding the Line with recruits.

In conclusion, gentlemen, I hope that the suggestions which I have ventured to make will not be voted presumptuous, or condemned as impracticable. Many of them have already been recommended by the Militia Committee; and they are advanced by me in the conviction that it is absolutely necessary that the Militia, if it is to hold its own, should keep abreast of the times—that the efficiency of its Officers should be placed beyond the reach of disparagement, whether by friends or foes.

Colonel C. K. BROOKE (3rd Batt. East Yorkshire Regt.): I stand up with very great diffidence to speak in the presence of so many Commanding Officers who know so very much more about the subject than I do; but there are one or two points I should very much wish to bring before the meeting. I wish first of all to express my deep debt to the lecturer for the exceedingly practical manner in which he has put forward the various disadvantages under which Militia Officers labour; especially with regard to facilities for learning field service duties, and to attending instructional, garrison, musketry, and signalling classes. I will deal first with the field training of the Militia, a subject which I have studied for some years, and that is my sole plea for standing before you this afternoon. I think, looking at the work that the Militia does during the training, there is at the present day a little bit too much of following on in the old lines. Very different circumstances exist now; and it is time that we Commanding Officers take some step or other to alter the ordinary routine, which, as the lecturer has very fairly said, in a great many regiments is said to be dull. From my point of view, I do not see that there is any great difficulty in training the Officers of Militia battalions in the rudiments of field service exercises; but, feeling this, one is brought face to face with the fact that we have only twenty working days in which to do all the work we have to do, and it requires a great amount of scheming and planning to bring in this extra work. If you will allow me, I will just read in a few words the scheme which I have drawn up for my regiment, and which I intend to commence this year. It is simply this, that knowing that we have only twenty days to work in, I feel that a thorough field training cannot be carried out in one year, but I think the work may be done in three years; and, in consequence, I would devote each year to different branches of field service duties. In the first year I would take up advance guards, rear guards, outpost duty, and company combats on an open plain or common. In the second year I would take up the attack and defence of a position, the supply of ammunition on the field, and fire discipline; with these I should combine some reconnoitring exercises. In the third year the training would be the attack and defence of localities—a village, woods, a defile, and the like—action against cavalry and artillery, escort to guns and to a convoy. I think by adopting some plan of this kind and spreading it over three years some definite training might be given to the Officers.¹ The first week of the training, we all know, is an exceedingly stupid

¹ Two months before the training, all the Officers of the regiment would be informed as to the field service exercises that will be demanded of them. The permanent staff would be prepared by the Adjutant during the winter.

week to everybody. The men are being soundly trained in the rudiments of their drill, continuously, most carefully, and thoroughly, but in their training the Officers have very little to do indeed. For this week I would suggest that we take out of the ranks all the old soldiers we have, also any specially efficient Militiamen; group all these men into a special squad, and make use of this squad to train the Officers in the rudiments of whatever field exercises are going to be done in this year. In the succeeding week this field training would be enlarged by making it company work first, then wing, and then battalion with a skeleton enemy. If some such system as this were taken up, and worked out by different Commanding Officers, then from the data thus obtained we could evolve some plan which I think might get rid of the reproaches made by some Officers, that they learn nothing about any field service work at all. Passing from this particular point, there are one or two things in the lecture on which I should like to speak. With regard to the deficiency of military education in Subalterns who are promoted to the rank of Captain after only a few trainings, it must be remembered that now-a-days a very considerable number of Subaltern Officers, and also many Captains, do duty with the depôts, and there they get a very good training indeed, and this training is quite sufficient to wipe out the necessity of attending six trainings with their regiment in order to become Captains. There are a great many Subalterns within my knowledge who have spent months and months at depôts doing as useful and as thorough work as in a regiment: these Officers certainly should not be debarred from promotion because they have not attended six trainings. Again, it is well known that in 1889 there was a large deficiency of Captains in the Force, I think 128. That want of Captains has always been a very serious fact, and it is a point we must not tamper with. We must not institute compulsory examinations for Subalterns; it would drive away Officers from becoming Captains, and therefore I think any hard-and-fast rule with regard to the promotion of Subalterns is to be deprecated. A great deal lies in the hands of Commanding Officers of Militia. I have served in the Line twenty-two years, and all I can say is, that I consider that a Commanding Officer in the Militia is a much more powerful man than a Commanding Officer in the Line: you have more power in your hands over your Officers and men. If a Commanding Officer insists upon tactics and other examinations being passed by his Officers, he gets them to do it; and if one Commanding Officer can do this, why cannot another? I say that we Commanding Officers must step into the breach; first, show how much can be done in twenty days; then turn to the authorities and say, "We can do no more; you must help us." With regard to Officers attending the different classes of instruction, I quite agree with the lecturer that every Officer should be permitted to go, and that his expenses, if he obtains the required certificate, should be paid. There should be a regulation permitting, say, two Captains and four Subalterns per annum to attend instructional classes; or some kind of scale of allowances that might be expended in each regiment. The present system is excessively detrimental to the Captains. I have a Captain in my regiment, a very zealous Officer, very keen in musketry; he wanted to go to Hythe; but I have two Subalterns who have been to Hythe; consequently he could not go. The result is, that Officer does not get the qualification in musketry that he absolutely deserves. I think this is a blot in our system, and it works very unfairly to Officers. I am sure that on this point the lecturer has done very good service by bringing the matter forward, and I hope his suggestions will be duly weighed.

Colonel ALEXANDER MAN (3rd Batt. Gordon Highlanders): Much that I was going to say has been said, far better than I could have expressed it, by the Officer who has just sat down. He has left me very little to add. There are, however, just one or two things I should still like to remark upon. I took particular notice of Captain Holden's opening words, and I think that it is a matter for great congratulation that the lecturer is, as he himself has said, young in point of rank and young in point of age. Because, if an older man, a Commanding Officer, for instance, had come forward and made many of these propositions, I am quite sure he would have been met by the cry we have heard over and over again, "Oh, it is all very well, but if you make your examinations more stringent you will lose the men you have got, and you will fail

to get others to take their places!" Sir, dissenting entirely as I do from that cry, I take it to be a fortunate circumstance that an Officer holding the rank Captain Holden does has had the courage to get up and, as much as one man can possibly do in his own person, prove how fallacious the cry is. For my part, I firmly believe that the time has arrived when it is necessary for the Militia, if it is to hold its place amongst the Forces of the nation, to try to have its standard of professional knowledge advanced; advanced in proportion as its professional status has been advanced. For, remember, since the old Regulations were made—Regulations which were good enough in their day—Militia Officers have been placed under the Mutiny Act all the year round. They are not legally soldiers for only twenty-seven days now; they are legally soldiers for the whole of the 365 days. This change in professional status should be met by a corresponding change in professional standards. I humbly express my opinions as one who began life in the Militia more than thirty years ago, and who has chanced to have had opportunities of hearing questions connected with it discussed by men who were masters in the art of organization. I have sat at the feet of two: the first was an Officer revered by all who were then in the Militia, I mean General James Armstrong; and the other was Valentine Baker Pasha, who took an almost equally deep interest in our Service. I say that I am convinced, from what I have heard these two able men say, and from what also I have myself observed, that, so far from driving away the class of Officer we want, we shall more surely gain him over to us by being enabled to give him something which is a reality in return for his services. Our people, happily, hate the very suspicion of a sham; and the class which chiefly officers the British Army looks upon all rank as a sham which does not *necessarily* carry with it the qualifications which, so to speak, should "go without saying" in the case of gentlemen who call themselves "Captain," "Major," or "Colonel." Time does not permit me to closely follow Captain Holden through his analysis of the present state of military education in the Militia, or through his proposals for making the Regulations more stringent. But I may briefly refer to one or two small points. As regards the present qualifications, the case is really a little better than he puts it. It is a little better in the matter of the schools in this way. There are many field Officers in the Militia who have been to schools when they were Subalterns, but who get no P.S. against their names under present Regulations. That fact must be put to our credit. Again, there are a great many Officers who have served in the Line, and have, necessarily, gone through the technical examination. They, also, do not show to our credit. In numbering up the P.S.'s and T.'s, neither of these classes comes in. As regards what Captain Holden proposes with a view of elevating the standards of professional knowledge, I am heart and soul with him in nearly everything he said. In a few details we might differ, but on the general line I am entirely with him. I think that most of his proposals are reasonable, nay, are absolutely necessary, if, as I said, we are to hold our place and are to be taken seriously. With regard to the rule which lays it down that a Subaltern must serve three trainings before he can be promoted to a company, I think that the limit is too short. The previous speaker put it, however, very fairly when he said that a man who has been, say, two years in the Militia, but who has served, perhaps, for many months at the dépôt, was in a different position altogether. I agree to that, and am speaking only of a man who has just done three trainings. It is a ridiculously short period, and it tends to lower the value of the rank. I should like to see it made a law that no Lieutenant should be promoted until he has been through the school and through Hythe, and has obtained the T. There is just one other point. I have heard it said that the Militia Commanding Officers have the remedy, to a great extent, in their own hands; that when they examine a candidate they can, to put it roughly, make a bargain with him. They can tell him, "You must do this and that, or I will not take you." Now, that is hardly the true state of the case. The very first paragraph of the Militia Regulations gives the nomination of Subalterns, not to the Commanding Officer, but to the Lord Lieutenant. Suppose the Lord Lieutenant chooses always to exercise his power, and to directly nominate, what then becomes of the Commanding Officer's bargain with the candidates? Of course, we all know perfectly well that many Lord Lieutenants take a keen interest in the well-being of their county battalions, and back up the Commanding Officers in

every way. It is so in my own case, as I gratefully acknowledge. I am supported in every possible way. I have to thank my Lord Lieutenant for that; but it is an individual case, and it might have been the other way. I have nothing more to say, except just this: I think it is, indeed, a good omen that you, Sir, are in the Chair this afternoon, and I do most earnestly trust that there may be such unanimity amongst us, on the main points we are discussing, that you may leave this theatre convinced that the old Constitutional Force knows what it wants, and is not afraid of stating, in your presence what those wants are.

Major A. L. SALMOND (3rd Batt. Sherwood Foresters): Sir, I have listened with the greatest pleasure to the lecture by my friend Captain Holden, and with the bulk of it I am bound to say I entirely agree. But there is one point on which I am equally bound to say I differ from him, and it is possible that in this respect I differ as well from some of those who have preceded me: it is with regard to the suggestion he made that Militia Officers should be granted pay and allowances whenever they get these extra certificates. If in this particular matter I happen to quote myself, I hope I shall not be thought egotistical; I only do so with the object of pointing my argument, and to show that I have personal knowledge of the matter. I do not want it to go out from here—and I am sure that such is not Captain Holden's intention for one moment—that Militia Officers in any way measure their efficiency by the financial return which that efficiency may bring to them. I should be very sorry indeed to find, and I am quite certain it is not the case, that Militia Officers in any way whatever paused before they presented themselves for these examinations, and asked themselves whether or not they were going to get paid for so doing. We all know the difficulty which exists in finding money for other Departments, and I for one emphatically repudiate the idea that we desire pay should go with these certificates. There is one subject on which Captain Holden has not touched, and which I think is a matter which does require amendment: it is with regard to some of the extra examinations which we are permitted to attend. Some of us are probably in the same position as myself, in having other occupations in civil life. Those occupations do not permit us to devote any very great length of time to preparing ourselves for examinations comprising several distinct subjects; but they do permit us time to prepare for one subject at a time. For instance, we could find time to prepare for the tactics, for the P.S., for the signalling, and other matters on separate occasions. By the present Regulations—those of 1889—dealing with the examinations in tactics, field fortification, and military topography, Militia Officers are allowed to present themselves for tactics alone. But those Militia Officers who have obtained the tactics certificate, and who wish to present themselves for examination in the remaining subjects, must take them up together and not separately. That is a Regulation that I protest against. Again I must quote my own case. I have obtained both P.S. certificates, both tactics and the signalling certificate; this I was enabled to do by reason of the fact that each one formed the subject of a separate examination. Every half-year I receive, as I have no doubt we all do, the official communication from Headquarters requesting to know whether I wish to present myself for examination in military law, field fortification, and military topography, and my answer has always been that I will go up for them if I can take each separately, but I cannot take them up all at one time. The answer to that, equally of course, is that the Regulations require them to be taken together or not at all. Well, I cannot see the reason for this; I cannot see why the subjects should not be broken up and made the matter of distinct examinations. That there is no insuperable difficulty about it I think I can show. I deprecate constant comparison of the Militia Officers with those of the Volunteers. What their qualifications are and what they are not I do not think much matters to us beyond stiffening our determination to keep ahead in efficiency; but in this case I must quote the facilities afforded Volunteers. They have permission to present themselves for examination in these subjects, military law, field fortification, and topography separately, on different occasions. If this is allowed in their case, I cannot see why it should not be in ours. This is a small concession, which I venture to hope when the new Regulations are being considered will be granted us. I certainly do not think any of us are influenced by the question of pay; we only want to make ourselves efficient, and if we are permitted to present ourselves for

these examinations in the manner I suggest, and, by passing them, to make ourselves efficient, I think, Sir, you will find a very large number of us will do so.

Captain G. LE M. GRETTON (3rd Batt. Royal Warwickshire Regt.): It appears to me, speaking from my own personal point of view, that our lecturer is the most moderate reformer I have ever heard of, for, instead of being an iconoclast, he wishes to preserve the Militia, to build it up and improve it. His scheme appears, as far as I am competent to express an opinion, to be moderate, sound, and practical. I know that there is a theory among some people, usually not Militiamen, that if you attempt to educate the Militia Officers up to date, large numbers of them will leave. I myself do not believe that will be the case. I think the small number of men who would leave if we were to be educated up to date would be inappreciable, and that we should readily fill their places with as good a class, if not a better, than those who went out. There is one small point on which I disagree with Captain Holden, that is, on the subject of the school of instruction at the Wellington Barracks or Aldershot. He said he thinks it would be better for us if the school were to be transferred to Aldershot, and we were to have a course of company military training there, instead of the existing course of drill. I must say I think it would be a mistake to do away with the existing schools. I think the school of instruction at Wellington Barracks is a most admirable institution for the teaching of drill, pure and simple; there you learn drill far better than you can expect to learn it at your dépôt, or at your own battalion. With your battalion, or at a dépôt, the teaching staff is not able to concentrate its attention upon you, they have to lick the men into shape, they have not the time and opportunity to watch and correct your mistakes; whereas, if you go to Wellington Barracks, there is a class of about twenty-four Officers, with a Commanding Officer and Adjutant, and at least four uncommonly smart Guard sergeants who are always at your heels; they shout at you on the slightest pretext; they make your life a burden to you for the time being, and they teach you drill magnificently. There has been a good deal of talk in some of the papers about the way in which Officers at the school of instruction are treated. They say, We are not treated civilly. Personally, I must say I have the pleasantest recollection of the month I spent at Wellington Barracks a couple of years ago; and I think the men who complain are men who possibly are not used to soldiering and who do not quite understand what discipline is. But, Sir, I think it would be a very great advantage if a tactical school, such as Captain Holden has indicated, could be established at Aldershot, where we could practically learn something about outposts and advance and rear guards, the attack and defence of positions, and so on—branches of our trade which we really have no opportunity of studying when we are out with our regiments. Of course I have no doubt that this suggestion would be at once met by the Treasury saying the plan to establish such a school would be too expensive, that you would require a couple of Officers, Commandant and Adjutant, and would have to take too many men away from the regiments quartered in Aldershot. That, no doubt, is true, but I have somewhere seen in the voluminous correspondence which has been going on on the subject of the Militia a suggestion which I think has considerable merit; it is that Officers should be attached for a month at a time to regiments when they are going through their company training; that is to say, a Militia Subaltern, or a Militia Captain, or Field Officer should be allowed to go to Aldershot to be attached to a company of some battalion that is going through its annual military training. I had the good luck to be attached to a Line regiment a few years ago when the first order to institute company training came out; the company I was with happened to be the one selected to go on first, and never did I spend a pleasanter time or a more profitable one. I learned lessons I shall never forget, and which I utterly fail to see that I should have learned in any other way except on active service. May I say two or three words on the subject of examinations for *c.* and *d.*? *c.* and *d.*, I find, are great bugbears to many of my friends, but my experience is that if you pass the tactical examination first, you can floor the remainder of the subjects in *c.* and *d.* in two months at a garrison class; at least, I did so last year, and I do not at all consider myself a genius! I think any man of decent brains and application who goes up to his garrison class and sticks to it will get through his topography, his law, and his fortification, in two months. It is no

hardship to study your trade; if you are a soldier you must learn your business. It may sound an exaggerated and a silly thing to say, but I would very much sooner read a clever book on tactics than an average novel any day. The law which we have to pass in we already know a good deal about, having learned it in the orderly room and in the routine work of our regiments. The fortification is very interesting, and works well in with tactics, so that one leads you on to the other. Topography is undoubtedly a bore, but the practical part of sketching is agreeable; it takes you out into the country, and is interesting, and the reconnaissance is instructive and appeals to one's common sense; but the hideous sums that they set you, asking you to turn metres into Dutch measure, and to find out how many thousand times a circle 25 inches round will revolve in a journey to the moon, are singularly painful. But, after all, examiners are not quite the scoundrels we imagine. Many of them have bowels of compassion—at least, that has been my experience. They have allowed me to pass, and if they allowed me to pass I imagine they will allow others to pass also. There is one very serious reason why we ought to consider the necessity for educating ourselves. We have now been brought into the Service; we now take precedence over Line Officers who are our juniors in rank. Surely for our own sakes, for the sake of our own dignity, we ought to be at least as well educationally qualified as the men whom we are entitled to command, and whom on active service we might find ourselves commanding. Could there be a greater anomaly than for a Militia Field Officer to find himself in command of perhaps a couple of Line Captains and two or three Subalterns—men who as lads have been to Sandhurst; who have had a first-rate military education; who afterwards have been soldiering twelve months in the year; who have possibly been on active service; who have been through their tactics and fortification, law, and topography as Subalterns for promotion, and *c.* and *d.* afterwards to get their Majority—is not it a gross absurdity for these men to be commanded by a man who is not qualified by professional study to do so? Up to the last year or two there were no means open to Militia infantry Officers to acquire any military knowledge beyond drill and musketry; but, now that garrison classes are thrown open to us, it rests with us ourselves to show our appreciation of the concession by largely availing ourselves of it.

The CHAIRMAN: Before I call upon the next Officer, I am going to express a hope that before we finish we shall be addressed by two Commanding Officers of Militia, whom I see here, and unless they do address us, I am sure we cannot regard our meeting as a complete thing. I want to ask Colonel Walker and Colonel Daniell to address us before we conclude.

Colonel SANDYS, M.P. (4th Batt. North Lancashire Regt.): In making the few remarks I shall venture to offer you to-day, I must begin by saying what very great pleasure it has given me to hear the very able lecture that has been delivered to us. One point which strikes me very much is that a gathering of this sort, which has been alluded to as one which has occurred, if not now for the first time, certainly not for a very long time, is a matter upon which we Officers of the Militia Force must decidedly congratulate ourselves. There is an old adage which says that the men who meet together succeed better in achievement than the men who do not meet, and I venture to think that one reason why the Militia Force, as a Force, has not had the advantages conceded to it in the various points essential to its thorough training and military well-being is that the Militia Officers have not met together often enough, and have not concentrated, as a body, their collective influence upon the high public officials who are charged with the overruling and direction of their affairs. Now, I must say this, we all know that when you approach a War Minister on a subject connected with Militia affairs—I speak from experience of the matter, having done so myself—we are met, perhaps, with the answer, "An admirable suggestion, an excellent thing for the Force, nothing could possibly be better; but it will cost so much money." We all know the proverb says, "It is the eternal want of pence perplexes public men;" but still, in a case of this kind, where the well-being of a great Force, which will in time of war take, and has before taken, a prominent place in upholding the national military reputation, is concerned, I venture to think, and to take this public opportunity of placing upon record, that a cheese-paring economy should not be allowed

to interfere with the efficiency of so important a part of the national forces. That, of course, is a self-evident proposition. But now as to certain technical details. One defective point which lies at the root of an insufficiently efficient Militia is, as has been pointed out very ably by the lecturer, that Militia Officers are not compelled to show sufficient experience in the knowledge of their profession before they are passed to the various grades in the ladder of regimental promotion. One point was put forward by the lecturer in which I thoroughly concur with him; that is, that the present system of promoting Officers to Captaincies in the Militia after three trainings is a practical absurdity. An Officer who has served three trainings, each of twenty working days—that is to say, for sixty days of drill in all—is not fitted for a Captain, and if anybody will tell me that an Officer of the general age of Militia Captains is fit, with sixty days' military preparation, to be entrusted with the lives of men under his command in action, or even in ordinary peace duties away from the headquarters of the regiment, I venture to think most of us here would not agree with him. In my own mind, I have always laid it down (I am commanding a battalion at the present time; I have not yet attained that anomalous position which is called Colonel-Commandant, which I wish was struck out altogether, because I think each Commanding Officer ought to command his own battalion and be responsible for it in all details) that I would never recommend an Officer in my own battalion for promotion to Captain until he had done seven trainings. I think with seven trainings he might, if he worked hard, get a certain amount of efficiency, but he would certainly have to pass in tactics, he certainly ought to gain the Hythe certificate, and he should certainly show interest in and knowledge of his military duties, in addition to his seven trainings, before he could be considered fit to be a Captain of Militia. The subject is a large one, and we know the time allotted for speaking to-day is short, but there are still one or two points I must touch upon. Strensall camp has been alluded to to-day. The camp at Strensall is a very excellent thing. My battalion is in the northern part of the country, so I hear a good deal about that place. Now, what happens at Strensall? Instead of a Militia regiment going to Strensall and having tactical instruction and field training drill by companies, as was recommended to-day, every word of which recommendation I endorse, for what is wanted is company drill for Militia—never mind the battalion or the brigade drill; that will take care of itself if company drill is thoroughly taught—now, the Militia regiment goes to Strensall, it is marched in the first day of training, and then we all know what a Militia regiment is the first day of assembly. The day after they get in, the order goes round, they are to hold themselves in readiness for brigade drill, a very good thing for the Field Officers and their chargers, but a bad thing for training the Militiaman. Again, we are said to go out for twenty-eight days' training in Militia; twenty-seven days' training is what we really go out for; but if the Officer gets twenty days out of the twenty-eight he is lucky. We always train under canvas on the west coast of Lancashire, and all I can make there is nineteen working days in one training, and that means exactly forty drills; doing the best we possibly can, we get forty drills and no more. What I should like, if possible, and if Militia opinion and influence could be brought to bear upon the Secretary of State for War, and upon Her Majesty's Government, to this end, it would be a great advantage to the Militia Force, and that would be, that we should be called out for twenty-eight days' actual training; give us twenty-eight actual working days; at present we only get nineteen. It only means one week more, and I am quite sure the extra efficiency that would be got from the Militia in those extra days would fully compensate the country for the money it would cost. There is one other point, which is with reference to the present system of training recruits in the Militia. The Militia recruit course is too short for him to attain efficiency. Not only is it short, but it includes non-training days—Sundays of course, Saturdays, which are generally occupied with coal fatigue in barracks, and with days at hospital counted in. A man has to be vaccinated, and very often his arm is so sore after vaccination that he cannot carry his rifle for four or five days, and all of this comes out of his recruit course. Yet the man is expected to be thoroughly efficient at the end of that course thus curtailed. Cannot the recruits come up in batches three or four times a year? You see now a dozen or fifteen drilling upon the barrack square

at the depôt in different stages of drill. The men never get together so that you can have a company under instruction, and the non-commissioned officers who instruct them are continually worried by never being able to come to the end of their labour, for ever teaching the rudiments of drill and never getting the men thoroughly trained, as the present system does not admit of its being done. The system that I should like to see introduced into the Militia would be to say that there should be three or four times appointed for recruits to come up and train during the year, that they should be taken there as a batch of forty or fifty men together, and that those men who fail to come up to the standard at the end of the time allotted should be put back and go through it again with the next batch. That is the system adopted in the Guards, and that is how they get their men so thoroughly well trained before they are permitted to join their battalion. And though our time is short for recruits' training in the Militia, I venture to think something of that sort should be done. I quite agree that what is necessary for the Militia is that the Militia Officer should be more thoroughly trained than he now is, and unless an Officer has passed a certain examination necessary for the knowledge of his professional work he should not be promoted, and any reasonable inducement to Militia Officers to become more efficient in their professional knowledge would be well worth putting in their way. The Militia Force has been greatly neglected, and is not developed as it should be, as it ought to be, and as it can be, with some trouble and not a great deal of expense.

LORD RAGLAN (Captain Royal Monmouthshire Engineer Militia): I do not feel quite entitled to speak here, because I am not an infantry Militiaman, but there are certain points in the lecture I should like to make a few remarks upon. With most of the lecture I thoroughly agree. The first point was attaching an Officer to a regiment for instruction. I do not think that is a good system, looking at it in every way. A Militia Officer attached to a regiment of the Line is nobody's child; nobody is particularly interested in seeing that he learns what he should learn, and even with the best will in the world, with a Line regiment at home now-a-days, the time is so thoroughly taken up in training their own recruits, and their own Officers, that there is a great difficulty in getting a battalion together, and even a company for drill. Then there is another point. Captain Holden suggested that nobody should be appointed to a company in the Militia who had not a Hythe certificate. I think that is a little bit hard. I think Officers should be encouraged to go to Hythe as much as possible; but it would be almost impossible to lay down a hard-and-fast rule that they must have a Hythe certificate. After all, a man can teach men to shoot without being in possession of a Hythe certificate, and it depends on the interest the individual Officer takes in the shooting of his men, almost more than on having been trained at Hythe. There is another course which has not been mentioned by anybody who has spoken here to-day, which is the most excellent and valuable course known as the Infantry Officers' Engineering Course, at Chatham. A great deal is taught there in a very short time, and if Militia Officers were to be allowed to attend that course, I think they would find the greatest possible benefit; they would learn a great deal of what, many of the speakers to-day said so truly, Militia Officers do not learn, such as field fortification, and things of that sort, which, if they are valuable for Officers of the Line, must be equally valuable for Officers of the Militia. I do not know whether I shall be in order in referring to my own branch of the Militia, the Engineers, but I would say that we ought to be allowed to attend the long engineering course at Chatham, and to receive pay at the same time. Some time ago they sent to ask my regiment whether any of us would go to the six months' course; seventeen Officers, so far as I remember, sent their names in, and, appalled by this, the authorities at Chatham said, "Oh, we don't want any of you!" We have never had the offer made to us since. I certainly think if you have Engineers at all in the Militia, we ought to know something about engineering. Under our present system of training we do not learn more than the average Line Officer learns about engineering. I do not quite agree with the remarks of one of the speakers, about Officers not receiving pay when they go out to these schools. I think "the labourer is worthy of his hire." If he is doing his duty—qualifying himself for the position which he holds in the forces of his country, I think the least

the country can do is to give him money for doing it. About signalling, the lecturer said it would be impossible to teach private Militiamen signalling. I do not think myself there would be any difficulty whatever in getting men from any Militia regiment to attend a course of signalling at Aldershot, or anywhere else. In my own Militia regiment the volunteer sergeants go through a four months' engineering course at Chatham. We never have any difficulty in getting them to go: they go sometimes twelve or fourteen in a year, and I hope there will be no difficulty in getting either volunteer sergeants or private Militiamen to go through a signalling course, provided of course the Government would find the money for doing it.

Colonel G. G. WALKER, A.D.C. (3rd Batt. King's Own Scottish Borderers): I am thankful that by General Fremantle's suggestion I am enabled to say a few words, and the first word I would say would be to acknowledge the deep debt of gratitude that we feel to General Fremantle for the cordial and friendly words with which he opened this meeting, disclaiming any feeling of hostility or disparagement to the Force to which we are proud to belong. We accept those statements of his gratefully and without reserve. Knowing the Force, I think, pretty well, having been in touch with it for a great number of years, I think it only right and fair to say at present there is a deep sense of discouragement pervading the whole Force; there is a feeling, it may be justified or it may not, that we are without friends, and there is a feeling that, while we do not belong to the Regular Army, we are administered by the Regular Army, and we are administered for purposes which are not our own, but are those of the Regular Army. That is the feeling which I am afraid is very strongly and deeply implanted in our Service. Turning from that to our friend Captain Holden's lecture, I feel we are deeply indebted to him for having taken the trouble to call us together at all, because we have always felt that it is one unhappy accident of our Militia Service that we are not a Force really; we are only a set of disjointed battalions, we never meet each other for discussion, or for the purpose of comparing notes. An occasion on which we assemble in this room we consider to be a most valuable opportunity for discussing Militia matters. But, quite independently of that, we have elicited a practical amount of unanimity on the subject on which he has lectured. There is general agreement that the education of our Officers admits of improvement; there is general agreement that we are quite ready to adopt measures for its improvement, and we only want the encouragement of the War Office to carry them out. I have said that there is an amount of discouragement pervading the Force, and as a humble member of that very much, and to some extent deservedly, abused body, Lord Harris' Militia Committee, I should like to refer to it in a few words. I think I am not violating any confidence when I say the Militia members of that Committee, discussing it over amongst themselves, determined to make no extraordinary demands. We felt that we had very little chance of getting anything involving a large expenditure of public money, and we had no chance of getting anything at all unless we succeeded in carrying with us the official and military members of that Committee, and therefore the suggestions made by that Committee were the minimum we could accept. I do not say nothing was done, for something has been done, and I myself, and I trust all of us are grateful for what has been done. Tent floors have been given us, and also the very useful boon of flannel shirts is gradually but very slowly permeating the Force. In addition to that, something was given which I think is of very great value, and that was the fortnight for musketry, which enables us to bring our recruits together for a fortnight before they commence training. I cannot exaggerate the value of that, but, having mentioned that and having pretty well exhausted what has been done, I am obliged to call attention to what has not been done. I will only mention three subjects, but they are not the least important of the suggestions made, and which have been absolutely ignored. In the first place there was the question of schools, which has been discussed very ably here this afternoon. The Committee unanimously recommended that the schools should not be carried on on the present system, but that there should be alternate courses for the Militia, and for the Volunteers, for this reason, that with the very ample time now given for the training of a Militia recruit Officer it was unnecessary for them to go to the existing schools. At schools of instruction they teach, and

teach most admirably, what the young Militia Officer ought to be taught in his battalion, squad, and company drill, rifle exercises and so on. If a young Officer cannot learn this in the twelve weeks he has now got to serve in his first year, he has not got anything of the soldier in him, and therefore the schools are not qualified for doing the work for the Militia which I have no doubt they do for the Volunteer Force. That recommendation I am sorry to say has been entirely ignored at present. There was another matter of recommendation which was perhaps rather a matter of sentiment, and which did not involve the expenditure of one sixpence. There was a strong feeling among many Militiamen that it was a great misfortune for the Militia losing its own name, and being lumped up, under the title of the Auxiliary Forces, with forces which have nothing in common except the courage of our countrymen. They felt that their Service was left out in the cold, and that the Militia were looked upon as rather a dead branch of the Auxiliary Services. The Committee unanimously recommended that the old title should be restored, and that we should be known as the Militia. For this purpose unfortunately it was necessary that there should be an Act of Parliament, but it would have to be a very brief one, because the only change required was to insert the words "Militia and" into all Acts connected with the Services. There was, I think, something very near a promise given last year that that would be done, but for the present it seems to have been forgotten. That is the second point that has been passed over. There is a third point the Committee called attention to, the subject of brigading the Militia. It is true a considerable number of battalions of Militia go every year to Aldershot, to Shorncliffe, and other camps, and go there with very great advantage; but it is done, as far as I can see, on no system whatever except to do it in the cheapest manner possible, and the proof of that is that in my own country, Scotland, where they have, I think, thirteen battalions of infantry Militia, not one single battalion has been brigaded with the Line for sixteen years. What the Committee recommended was that the Militia battalions should be put on a regular roster, and that they should be sent at intervals of five or six years to camps of instruction to take their turn at the mill. I do not think the present system is a good one, always sending the same battalions to Aldershot, or elsewhere; it weakens the local spirit of the battalions, and in some cases must check recruiting; but our battalions could not possibly object to go once in five or six years to a camp of instruction. I have mentioned those three points which were unanimously recommended by the Committee, and which have been entirely neglected. I have said there seemed to be a general consensus among the Officers present that there is room for improvement, and that we are willing to make it, and I hope everything will be done to press that upon the authorities, but I should like to say to those present, and especially to the young Officers, many of whom are here, that we should go with these demands to the authorities with much greater confidence, if we were able to say we have done all in our power to make ourselves efficient. And I would say the future of the Militia depends especially upon the young Officers who have to replace the old fellows when we have cleared out. Every Officer can do much if he is willing and anxious to do so. There are many ways of acquiring military information; there are the schools of instruction, Hythe; there is being attached to your own recruits, attached to your depôts or line battalions, and there is also private study. All of these are good, and I should like Officers to adopt that which suits them best, or at any rate to do something. For myself I can only say, though all are good, there is no one so good as constant daily contact in the drill field and in the quarters with soldiers, and especially with the soldiers of your battalion. That is the best school the young Militia Officer can attend, and the lesson he should learn there would be, not getting certificates and that sort of thing, but learning the habit of command, learning to do instinctively, to think instinctively, the right thing, to say instinctively the right thing and to say it in the right way, that is, to give the clear ringing word of command to which the British soldier jumps instinctively. That is what we have to look to learn and not piling up certificates on paper. I entreat Officers to look at it in that spirit and never rest until they have acquired that habit of command which is of so much value. I am not sanguine, I am too old to be sanguine, about anything, especially about the Militia, but I am

sanguine enough to think, if we address ourselves to our duty in that spirit, the old Militia cause has got such a hold upon the instincts of the country that it will survive even its present discouragements and will yet live to take its old place in the defensive system of the country.

Colonel J. LE GREY DANIELL (4th Batt. East Surrey Regt.): I came here, Sir, to listen, and not to speak; therefore I did not send my card up to you; but, in obedience to the suggestion you were good enough to make with regard to Colonel Walker and myself, I rise to make one or two observations. One reason why I did not propose to join in the discussion myself was that the Officer commanding our regimental district, Colonel Bayley, was present, but has been obliged to leave, who would be able to speak on the subject with much greater force than I can. Keeping ourselves to the point of instruction of Militia Officers, there is very little that I can add to what has been said already. I regret to have to disagree with the opinion of Lord Raglan, that a Line battalion is not a good place for a young Militia Subaltern to be attached to, because, as a gallant Commanding Officer on my left said just now, so much remains with the Commanding Officer of a Militia battalion. If he were only to interest himself a little bit with the Line battalion to which his young Subaltern was attached, the result will be appreciable directly. I agree with Captain Holden in his views, and I thank him most heartily for what he has given us. It would be a good thing if we could get an extension of opportunities for instruction in various parts of the country, at which Officers of the Militia could attend together. One thing that did strike me was in connection with the new Musketry Regulations which are to come out, or have come out, that it would be a good opportunity for providing that the recruit Officer should be obliged to go out with the recruits for a fortnight before the regular training. I think it would be a great advantage to him, as he can have but very little knowledge of musketry, and if he would only do that, great advantage would be obtained, and I trust, Sir, you will be able to see your way to giving this matter your consideration.

Major F. R. TWEMLOW (4th Batt. N. Staffordshire Regt.): There is one point which has been raised which I wish to say a word about, which has not been referred to by any previous speaker. The lecturer said that in his regiment it had been found very beneficial to send one or two companies at a time to a musketry camp on the range. I can only say that in the adjoining county of Stafford we have not found the system work altogether well. No doubt it is a good thing to give an Officer individual responsibility, and from the point of view of the Officer, I dare say there is much to be said for it. But we have to look to the general discipline of the regiment, and in that respect I venture to think the arrangement is open to grave objections. During the time I have been in the Militia, we have had experience of billets, and camps, and barracks. Experience seems to show that with men who have only imperfectly acquired habits of discipline and obedience, and with Officers who only command during one month in the twelve, and whose military knowledge is apt to get somewhat rusty, it is most desirable to keep the regiments together, and to prevent the men from being in constant contact with civilians. In barracks you have the men inside the wall at night, and they are then under complete control. In permanent camps you have far more hold upon them than in billets. But in these temporary camps it is difficult to keep the men thoroughly in hand; and the musketry returns show conclusively that better shooting is made when the men return each evening to headquarters. Circumstances alter cases, and in some places this difficulty may not be serious; but where, as sometimes happens, the rifle range is in the immediate neighbourhood of a large town, the result is something like this:—a company is sent under the command of its Captain, with the Subalterns, staff-sergeants, &c., to go through three days' musketry (there may be a Sunday intervening, and on that Sunday the men have nothing to do after the church parade). It is necessary to have a canteen to supply the men with what they require, and this attracts people out of the town, whom it is impossible to keep out of the camp, and discipline is sure to suffer. There is another practical consideration, which is that it is most desirable that staff-sergeants should be under the eye of the Adjutant and sergeant-major.

The CHAIRMAN: This is not quite an educational question: the point we have to discuss is rather the education of the Officers.

Major TWEMLOW: My point is, that the experience which these small camps afford to the company Officers may be too dearly bought.

Colonel JOHN DAVIS, F.S.A. (3rd Batt. "The Queen's," Roy. West Surrey Regt.): Most of the subjects I had in my mind have been so well and ably stated by other Officers that I really do not see that I have anything to add. There is one thing, however, I should like to say, and that is that I feel very strongly indeed that the future of the Force, and the future education and position of its Officers, depends in a very large degree upon the Commanding Officers of Militia regiments. One gallant Officer has said that the power of a Militia Commanding Officer is greater than that of an Officer in the Line. I can only say, since I have been a Commanding Officer I have always had the most complete obedience from my Officers, but I have found some little difficulty in persuading Officers to go through the school of instruction. I am glad to say that that difficulty is gradually but surely being overcome, and I hope before my term of command is over I shall be in the proud position that my friend Colonel Walker is in, of having every Officer in my battalion passed through the school, and possessed of the very distinctive marks of the education of a soldier. If Commanding Officers could be led to feel as Colonel Walker does, as I have done myself, and a great many others, that it lies with themselves to make the Militia service more powerful and better thought of, and if they only get the cordial support of their Officers in getting the very best possible instruction they can, and making themselves proper and fit soldiers, I think the Militia Force would again take the position that it ought to occupy.

The CHAIRMAN: I am sure we should like to hear an answer from Captain Holden on some of these points. As far as I am concerned, I do not want to criticize the lecture at all, but I should like to make one or two remarks upon certain things that have fallen from the gentlemen who have done us the honour of addressing us. I perfectly agree with what has been alluded to by Colonel Brooks, by Colonel Davis, and Colonel Walker, about the power of the Commanding Officer to influence his Officers in the Militia. I think a great deal depends upon the force of character in the Commanding Officer, and I am perfectly sure that all young Commanding Officers here will follow the example of Colonel Walker and Colonel Davis, and will get their Officers to go to school, and to arrive at a standard which will be a very high and good standard. I was disappointed that no one has alluded to a rather important subject raised by Captain Holden, and that is, with regard to the Adjutants of the Militia. I can only say, from my own experience, that, on the whole, I think the five years' rule of bringing Officers fresh from Line battalions to the Militia, and their going back again at the end of that time, has had a good effect both on the Militia and Regulars, and I am disposed to think that, because, in a great number of instances, when that five years has expired a Commanding Officer has implored me to do everything possible to retain the services of the Adjutant a little longer. Of course, I am perfectly aware that there are Adjutants and Adjutants, and I can assure you one of the most difficult and anxious tasks of an Officer holding my position is to prevent indifferent Officers from getting Militia Adjutancies, and to insist upon nobody getting them but really good men; and if the Commanding Officer of a Militia battalion, with the support of the Officer Commanding the District, will say that an Adjutant does not pay proper attention, that he is idle and slack, you may depend upon it that Adjutant will soon be sent back to his duties in his Line battalion. I quite agree with a great deal that has been said about the want of room at Hythe. I only wish we had more room, because it has been most deplorable to me sometimes to be told by Commanding Officers that, after a great deal of trouble, they have induced so-and-so to go to Hythe, and then there has been no room for him. That really is most depressing upon the Militia. I have always pressed it upon the authorities, and said how unfortunate it is that we cannot get more room, because you cannot always get a Militia Officer to volunteer to go to Hythe. It has a very bad effect when a Militia Officer says he will go, and then cannot be taken in. About the youth of Militia Captains, I quite agree that we would much rather have them with

six or seven years' service; but, unfortunately, beggars cannot always be choosers, and one particular case has come before me in which a very young man with a very short service has been recommended for a company in the Militia. His Commanding Officer makes a very good fight for it, I must say, and he is backed up by the district authorities. He says that he is well qualified (no other Subalterns being qualified at all), has been extremely zealous, and has passed every school he possibly can pass through, and that it would be an incentive to other Officers if he gets promotion. I confess myself, I find a certain amount of difficulty in saying, "No, promotion must not go on in the regiment; we must find somebody from outside to bring in." These things have to be looked at from more than one point of view, and in that I am sure everyone will agree with me. The only other thing I am going to allude to is as to what Colonel Sandys suggested with regard to increasing the length of time of training. I think I am not wrong in saying that before the Militia Committee some very interesting evidence bearing upon that was brought out, and I think rather the consensus of opinion was that, though the time during which the Militia training lasted is very short indeed, they do work at high pressure—tremendously high pressure there cannot be the slightest doubt—considering the result at the end of the training. I think there is a general opinion expressed that if you increase the time, that high pressure could not be kept up, and therefore it is very doubtful whether we do not get more out of them in the short time than we should by increasing its duration. That is all I want to say; but before I sit down I may say that I appreciate very highly the extremely interesting lecture that has been given to us by Captain Holden. It has been very moderate, very excellent, and very well thought out, and I am sure we are very much obliged to him, and we shall be very glad to hear his reply to any of the points that have been raised.

Captain HOLDEN: I do not propose to detain you long in reply. I made it a point in my lecture to urge the desirability of training Officers in time of peace in the duties which they will probably be called upon to perform in the event of war, and I therefore strongly advocated the training of individual companies under their Captains, according to the system of field training adopted in the Regular Army, as far as it can be made applicable to the Militia; and I am proud to find myself in such good company as Colonel Brooke, who holds similar views. He has served many years in the Line, has graduated at the Staff College, has carefully studied the subject of field training, and has published his views. Far too much attention is, in my humble opinion, bestowed upon battalion drill in the Militia, to the prejudice of sound practical company training, where young Officers might be taught the power of command, how to depend upon themselves, and how to act for themselves. I must confess that I am somewhat astonished at the remarks of Major Twemlow, who apparently thinks that the detaching of companies from their headquarters, even for the purposes of musketry, is open to such serious objection, that it would be difficult to maintain discipline and regularity; that there is no place in which to train a regiment so good as inside the barrack walls, and that when you have once got your men inside you should take good care to keep them there. I can speak with authority, certainly of my own regiment, and unhesitatingly assert that every Captain in it is perfectly competent in every sense to command his men and maintain discipline in whatever circumstances they may be placed, whether in a detached camp or elsewhere. Holding the view that the Militia should be trained in peace-time in the duties required of it in war, I do not consider a barrack square the proper place of training for a Militia regiment, from any point of view; and I hope sincerely that our duties on active service will find scope outside the limited sphere of barrack walls. As the remarks of one or two speakers might lead to the impression that I insufficiently appreciated the schools of instruction at Wellington Barracks and Aldershot, I wish to repeat, what I thought I had in unmistakable language made clear in my paper, that, so far as the instruction imparted at those schools goes, I consider it perfect. But, at the same time, I think it is unnecessary to devote so much time to the niceties of mere drill, when there are other more practical and more important subjects of which it is far more important a knowledge should be acquired. I do not concur in the opinion that the duty of making Officers attend schools of instruction, Hythe, and

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tactical examinations should rest with Commanding Officers. I consider that the duty should rest rather with the authorities. Would it not be better for the Government to lay down a certain standard of efficiency, and insist upon every Officer coming up to that standard, as is done in the Regular Army? The relegation of that duty to Commanding Officers is unfair upon them, and has the effect of inviting invidious comparisons between one regiment and another, which are very undesirable. I should like to see all the hieroglyphics which are now shown against different Officers' names swept out of the Army List; and the mere fact of an Officer appearing as a Captain or Field Officer in that book should be a sufficient indication that he is thoroughly qualified for his duties. As Colonel Walker has alluded to the promise of the Government to remove the Militia from the title of "Auxiliary Forces," I may mention that I happened to look yesterday at the Army Act of 1891, and the various amendments passed this year, but I did not find that the change of title had been effected: it appears to have been altogether ignored. I think nothing remains for me now but to express my sense of the compliment paid me by so many distinguished Officers coming here to-day; and to ask you to join me, which I am sure you will all do most heartily, in thanking General Fremantle for his kindness in taking the chair.

THE NAVY AND ITS EXHIBITION.

By Captain S. M. EARDLEY-WILMOT, R.N.

THE year 1891 will be memorable in a country justly proud of its pre-eminence at sea for two incidents closely connected with that maritime supremacy which has given the British Empire the place it now holds among the nations of the world. I allude to the launch of two noble warships at Portsmouth by the Queen last February, and the opening of a Naval Exhibition in the capital during the present month. The latter may perhaps be considered the culminating point of that increasing interest which the nation has taken in the condition of the Navy during the last few years.

Though not always apparent, it exists, and can be readily evoked when occasion requires. There never has been yet a legitimate demand for increased naval expenditure on the part of our rulers which has been refused by the country.

In the time of Charles II, Macaulay states: "The Commons, even when most discontented and most parsimonious, had always been bountiful, even to profusion, where the interest of the Navy was concerned; and, although the House was at that time in no giving mood, an aid of near 630,000*l.* had been granted for the building of thirty new men-of-war." The reluctance to ask for increased grants on the part of Governments has been the cause of our Fleet at times falling below that strength at which it should be maintained, taking into account the progress made by other nations. Whereas, in such a country as Germany, there is great difficulty in persuading Parliament to grant money for naval purposes, here we have the reverse, an unwilling Government coerced into expenditure by the unanimous voice of a people always ready to increase the efficiency of that force which, while it is the best protection of the Empire against foreign enemies, is powerless against civil liberty. As Lord Brassey says in one of his excellent naval annuals, referring to the increase of ship-building which took place under Lord Northbrook's administration, "The truth is that, at the bidding of the nation, we entered upon a new policy." That policy has been maintained and extended up to the present day, and the launch of the "Royal Sovereign" is a tangible proof that we are within measurable distance of obtaining an access of naval strength which will to some extent counterbalance the indifference of past years. Having alluded to what was deemed necessary in the time of Charles II to rehabilitate the Fleet, it may be of interest to briefly examine its counterpart in the present day. One thing is at once evident, that the total sum then granted would not now produce one first-class battle-ship. The "Royal Sovereign" of 1891 is one of eight vessels which will have cost, when ready for

commission, a million sterling each. She will be upwards of 14,000 tons, and practically take three years in construction from time of laying down till completion of trials.

In 1791 there was a "Royal Sovereign," which, two years later, carried the flag of Vice-Admiral Graves in Howe's squadron, and participated in his action of the 1st June, 1794. She was a hundred-gun ship, of about 2,200 tons, costing, with all her equipment complete, a little over 100,000*l*. In those days, even the largest ships could be built and sent to sea in a few months. At the time of the Crimean War, a French ship of the line was constructed and despatched to the scene of operations within eighty days.

Hence, at the present time, no reliance can be placed upon supplementing a naval force in its most powerful element during a war which is not protracted over years, and it is more than ever essential that the opening of hostilities should find us with an adequate number of battle-ships. The enormous increase of displacement which a century has produced is not, however, more remarkable than the advance made in the ordnance now carried by ships. From a projectile of 32 lbs., propelled by one-third its weight of powder, we have, in the new "Royal Sovereign," come to steel bolts, weighing over half a ton, hurled by 630 lbs. of powder to a distance of 10 miles. Each shot represents a concentrated broadside of forty 32-prs.: or four rounds fired simultaneously from the modern "Royal Sovereign's" heavy guns will equal in weight the broadsides of two eighty-gun ships equipped with the old smooth-bore piece. But even the 67-ton gun of the new vessels is a moderate arm compared with the much-abused 110-ton gun, of which two are carried by the "Victoria," "Sanspareil," and "Benbow." This capacious monster is fed with a shot weighing 1,800 lbs., which, by means of the energy stored in 960 lbs. of powder behind it, is capable of passing through nearly 3 feet of iron. Imagination fails to depict the result of a shell from this gun bursting within the confined spaces into which ironclads are subdivided. As in the old days a single broadside well directed sometimes decided the combat, it is not unreasonable to anticipate a similar result from one projectile reaching a vital spot when it combines such powers of penetration and destructiveness. The increase in the power of ordnance, though, perhaps, hastened and exaggerated by the introduction of armour, has been going on for more than a century. In 1752, a French writer on naval architecture, M. Duhamel de Monceau, said: "*Il est certain que ce sont toujours les gros canons qui sont les plus avantageux dans un combat, et ainsi il est préférable de mettre sur un vaisseau un petit nombre de gros canons qu'un grand nombre de petits.*" There must, however, be some limit, and it is probably found when complicated machinery is required for all the manipulation which, up to recent years, could be efficiently and expeditiously performed by hand. Experience has shown that it is safer to err on the side of simplicity, but, in spite of the various arguments which are put forward on both sides, with the greater vehemence as the less is known of the subject, the rude test of war can alone determine this and many other points.

It is some consolation to know that other nations are in the same predicament. Italy, the first to embark in monster ships and ordnance, with a boldness which may be admired though not necessarily imitated, has its "Italia" and "Lepanto" of 13,800 tons, each carrying four 100-ton guns, an armament which, if successfully applied, seems irresistible. The defect of these vessels is the want of external armour, and consequent danger of the guns being disabled by the explosion of powerful shells beneath. They have a speed of 18 knots, and carry 1,600 tons of coal. Whatever may be said against placing so much in a single vessel, they are magnificent specimens of naval architecture. Three others, somewhat smaller, are to have four 67-ton guns in place of the larger ordnance, but in other respects are not dissimilar. Italy possesses, in fact, ten battleships that will compare in power with any similar number elsewhere. How they will be handled when the clash of arms comes cannot be foretold from any indication yet given.

The progress of Russia in naval strength has been steady and consistent for some years, though a temporary aberration led her towards circular ironclads, and the influence of the "Monitor" type was long apparent in her shipbuilding policy. Having, however, regained full liberty in the Black Sea, a definite programme was laid down ten years ago which may be considered half accomplished. As a result, we find in the Black Sea three powerful ironclads completed, named the "Tchesma," "Sinope," and "Catherine II." Wise in limiting the dimensions to 10,400 tons, which involved moderate cost and time in production, Russia has in these vessels quite changed the maritime conditions which prevailed during the last war with Turkey. Under the influence of some strange infatuation, the latter has allowed the fine fleet she mustered fifteen years ago to fall into decay, and she no longer controls the Black Sea. The consequences, some day, will be most momentous, but with such matters I am not now concerned. The "Tchesma" and her consorts carry six 50-ton guns—an admirable armament, but somewhat too crowded in its location. It is, however, fairly well protected, and Russia follows France in adhering to the continuous water-line belt of armour.

In the Baltic, two useful vessels of 8,500 tons—the "Alexander II" and "Nicholas I"—are practically complete. Others are in course of construction. It would appear, therefore, that in battleships Russia is not attempting to compete with the first naval Powers; but has more in view in this respect—a struggle with a rival military Empire, whose shallow waters are not adapted to vessels of deep draught. But in the cruiser class Russia has long displayed an ability and progress not even second to this country. That clever brochure "The Russias' Hope," detailing, after the manner of "The Battle of Dorking," how the might of England was reduced by a skilful warfare directed against our commerce and colonies, reflects the opinion of how any future struggle should be conducted.

The reply to our "Blake" of 9,000 tons is the "Rurik" of 10,600, especially adapted for prolonged service on distant oceans.

Unlike the former, which is protected by an armoured deck only, the "Rurik" will have a belt of ten inches of armour. We may anticipate a superior speed in our vessel, but it is evident much mischief could be accomplished by such a rover before being brought to bay, if she obtained a start at the outbreak of hostilities. There is evidently no finality in cruiser, any more than in battle-ship, construction, and we should at once lay down six vessels of superior speed and armament to the "Rurik," because it is evident that she could not be overcome, even if overtaken, by any of our magnificent merchant steamers provided with such an armament as they are capable of carrying. Turning now to our ancient rival, France, we have a standard by which as of old we may compare types and aggregate strength. Of late years it has become the fashion, and it is sanctioned by authority, to say the naval power of Britain should be equal to that of any two other countries combined. This tends to mislead, as people simply apply a numerical test, and if by any process of comparison they are assured that our battle-ships are equal in numbers to those of the two countries selected they are content. It is obvious, however, that an accurate basis can only be found in the force necessary to successfully thwart, defeat, and paralyze the designs of such a combination; and to carry this out effectually there must be a superiority at the several points threatened incompatible with equal numbers. Such requirements involve an accurate knowledge of the resources, distribution, and strength of foreign navies denied to the majority, and hence some simpler basis is desirable. This can be found by reverting to the old principles of maintaining, in ships of the line, a number twice as great as can be shown by any other Power. This empirical standard commended itself to such a man of peace as Mr. Cobden, who held that we had a natural right to have two line-of-battle-ships to each vessel of that class possessed by France. That country has also admitted it. Lord Malmesbury records in his Diary on April 6th, 1859, that in an interview with Napoleon III the latter was much out of humour with Lord Palmerston's Government, which suspected all he did, and was always complaining of his building ships. This he ridiculed as childish, and said: "Let each build what he considers the right number; you ought to have twice as many as I, as they are your principal protection." When in 1793 the National Convention of France declared war against us, this proportion approximately existed; and it was the result of successful operations and energetic building on our part which afterwards so materially altered the ratio.

For some years after the peace of 1815 no systematic attempt to resuscitate her Navy was made by our late antagonist, until in 1820 the country was roused by a suggestion of Baron Portal, the Minister of Marine, "to abandon the institution to save the expense, or to increase the expenses to save the institution." A sum of twenty-eight millions sterling was granted to improve the fleet, to be spread over eleven years. Since that time progress has been steady, and at certain periods energetic. Before testing our position by this

historical standard it is desirable to review champion types in each navy. France has long been famous for the talent of her naval architects. Their ships have been models for our own, as when in 1672 the "Superbe," a French two decker, was reproduced in the "Harwich" and others. Pepys tells us also that the first frigate built in England was modelled from a French frigate, Pett the shipwright, had seen in the Thames. When the destructive effects of shell-fire were brought home to the world, France took the lead in armour-clad construction, but until after the Franco-German war the various types had not any marked features of merit. Since then some remarkable vessels have been constructed which have called forth the admiration of our own Officers who have been afforded an opportunity of observing them. The "Amiral Baudin" and "Formidable" are two in point. These fine ships are of 11,500 tons, hence considerably smaller than our "Royal Sovereign" type; but, as their conception dates back to ten years ago, when we had just completed the "Inflexible," and were preparing to build on new lines in the "Admiral" class, a more fitting comparison can be found in the "Nile" and "Trafalgar," though later designs. A special feature in the French vessels is their high freeboard, which, though it has the sole disadvantage of enlarging the target for an enemy's guns, ensures the ability to fight her own and keep the sea in all weathers with efficiency and comfort. They carry three 75-ton guns in separate positions, as against four 67-ton guns in two turrets, which is the principal armament of the English pair. In the latter a single shot might disable half their armament, whereas with the former it would affect only one-third of the heavy guns. There are, of course, corresponding advantages which may be advanced on our side. The difference as regards protection is principally in method of distribution. The French employ a complete belt of armour at the water-line, while we do not encumber the extremities with such weights. Much has been made of the danger of thus leaving the ends unprotected, but the objection is not based on experience. The little we have to guide us rather points to the immunity of the water-line under heavy fire. In the notable action of the Peruvian ironclad "Huascar," against two Chilean warships, the former suffered little at the water-line, but succumbed to the losses inflicted on Officers and men. The vital portions of the ship were intact after a heavy cannonade.

The French Naval Administration have decided to build three more ironclads of about 12,000 tons, and it is probable they will embody the principal features of the "Amiral Baudin" and "Formidable." There is no more difficult task, even for an expert, than to make a comparison of strength in vessels of war. Some would eliminate all built prior to a certain date, casting the term "obsolete" indiscriminately upon the remainder. Others draw the line at a fanciful distinction, as to whether a gun is charged at the breech or muzzle, forgetting that, up to a certain period, the power was unaffected by the method of loading, while simplicity was on the side of the now discarded system. As it appears to me that in comparing

armies some account must be taken of the soldiers who, having arrived at a certain time of life, do not carry a rifle with the alacrity of youth, but are still capable of rendering good service to their country in time of war, I shall attempt a comparison in battle-ships between the two countries foremost in maritime strength, in which due allowance is given to this principle. My deduction after a careful examination is, that at the present time we can muster thirty-six ships of the line, to which the French could oppose twenty-four in operations such as were carried out in the last great war. On each side there are building and completing ten others, so that it is very evident the completion of the Naval Defence Programme in this arm will not bring us into a secure position. As a further step Lord Brassey has proposed laying down ten more battle-ships. If carried out we should have practically the proportionate superiority deemed requisite by our ancestors.

Turning to cruisers, we may compare the "Royal Arthur," one of the vessels launched by Her Majesty, to others building across the Channel. A representative of the latter is the "Tage," of 7,050 tons, while our own type is to be of 7,700 tons. The different ideas prevailing in the two countries may be observed by the proportions given. Though 650 tons smaller, the "Tage" is 30 feet longer, and has 7 feet less beam. She has no heavier gun than a 6-inch, while the "Royal Arthur" will carry a stern-chaser of 22 tons, wherewith to annoy any more powerful vessel by whom she may be pursued. She will be undoubtedly a formidable craft, but whether her length is sufficient to give her such a superiority of speed over the other against moderate head winds and seas as to ensure success in pursuit in a few hours may perhaps be doubted. More recently the French, in view of the effects of quick-firing shell guns, have favoured for their cruisers thin steel armour placed externally as in our earlier ironclads, such as the "Warrior" and others. Practical experience seems to confirm the desirability, if possible, of keeping out shell. In an engagement between an unprotected Chilean cruiser and the forts at Valparaiso last month, a shell from the latter bursting within the ship blew up the deck, disabling nine guns and killing a number of men. As regards the number of cruisers this country should possess in reference to other Powers, it is obvious that such a ratio as two to one is inadequate.

Seeking some light from history, I find in that interesting volume, "The Corsairs of France," by Captain Norman, that during the wars between 1793 and 1815 we captured 1,031 French privateers. In the same period the Board of Admiralty issued 10,605 letters of marque to British vessels. That is to say, we had ten privateers scouring the seas for every privateer of the enemy we succeeded in capturing. It appears to me that a numerical ratio of ten to one may be adopted at the present time. Eliminating all those slow vessels once contemptuously defined by a French critic as "*la poussière navale*," and which, until lately, were more numerous with ourselves than with our neighbours, I find that last year we had forty-one cruisers of sixteen knots and upwards, fit for service. The French had eighteen in a

similar position. If we add vessels on the stocks our total is brought to eighty, and that of the French to thirty. When, therefore, at the Institution of Naval Architects, Lord Brassey proposed as a new programme forty first-class cruisers and thirty look-out ships, in addition to ten battle-ships, he was not submitting an unreasonable proposition.

It is a happy coincidence that the same year which gives the nation a tangible proof of the progress made to improve our Fleet in the launch by the Queen of two such vessels as the "Royal Sovereign" and "Royal Arthur" at Portsmouth on the same day, sees the birth of an Exhibition illustrating in a popular as well as a scientific manner that Navy which, in the memorable words of Pitt, "is the grand and proud bulwark of our fame; that Navy which has extended our commerce, our dominion and power to the most remote parts of the world; that Navy which has explored new sources of wealth, which has discovered new objects of glory." Here may be seen the features of many of those valiant men whose names are household words to most Englishmen. Never has there been gathered under one roof such a collection of pictures and portraits connected with the naval history of this country. The undaunted Blake, whose exploit at Santa Cruz was, records Clarendon, "so miraculous, that all men who knew the place concluded that no sober man, with what courage soever endued, would ever undertake it, whilst the Spaniards comforted themselves with the belief that they were devils and not men who had destroyed them in such a manner;" the vanquishers of the Invincible Armada, which event placed England in the first rank of European Powers; Rodney the captor of de Grasse, and declared by one who knew him well, "That as an Officer of nautical abilities, none were his superiors and but few his equals;" Howe, the reserved but beloved leader; St. Vincent, who came at a time to restore that discipline among the Officers and men which so materially assisted Nelson to accomplish what he did; Nelson and Collingwood, the David and Jonathan of the sea.—"We can, my dear Coll., have no little jealousies. We have only one great object in view, that of annihilating our enemies and getting a glorious peace for our country," writes the one on the eve of Trafalgar. "Oh! had Nelson lived! how complete had been my happiness, how perfect my joy!" writes the other after the battle. There can be seen many of that "band of brothers" as the hero of the Nile called them—Trounbridge, ever his trusted colleague, of whom his generous chief writes: "I well know he is my superior, and I so often want his advice and assistance." At that end so sad, the stern St. Vincent ejaculates, "I shall never see Trounbridge's like again! I loved that invaluable man." He was truly called the Bayard of the British Navy. And such others as Hood, Ball, Hallowell, Berry, Hardy, and Louis were not far behind. But who could resist that charm when, in the moment of victory and suffering a wound believed to be mortal, the chief could order the gallant Captain of the "Minotaur"—Louis—to be hailed and thank him for coming so nobly to his support. Such and many others will be the reflections

in looking upon the works of Beechey, Hoppner, and Romney dedicated to that period.

The full-sized model of the "Victory" will be equally suggestive of the past; showing the fighting deck, and that memorable scene in the cockpit when the adored of the nation, young in years but old in victory, found consolation in his last moments in the thought and expression, "Thank God, I have done my duty."

Those interested in the gradation by which we have advanced from ships of small burden to structures absorbing thousands of tons of iron, and proportionately weighty pieces of ordnance, will be able here to trace that progress, either in model form or the actual object. A Naval Exhibition on dry land only would have been deprived of much of its interest; but the provision of a large piece of water enables many of the operations of a fleet to be executed on a small scale. An action between two ironclads in which all the new weapons are brought into play will probably find great favour. The evolutions which have been carried out in nearly every war on shore by a Naval Brigade will be brought under the observation of thousands who hitherto have had little opportunity of seeing the Navy afloat or ashore.

The interest taken by our Royal Family in this enterprise has been remarkable. It recalls the time when sovereigns led English squadrons to action, and a King—Canute—was elected by the Fleet. It will be an evil day for this country when the Naval Service fails to attract the highest or the lowest, and if the Naval Exhibition serves only to strengthen the attachment between those whose business is on the great waters and their fellow countrymen, the exertions of all connected with its creation will be well repaid.

NAMES OF MEMBERS who joined the Institution between the 1st January
and the 31st March, 1891.

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Snow, A. D., Lieut. 1st Glouc. Arty. Vols. (W. Div. R.A.).	Dalby, John, Lieut. R.A.
Flower, P. H., Lieut. R.A.	Long, W. J., Lieut. King's Rl. Rifle Corps.
Horton, T., Major York and Lanc. Regt.	Manuel, G. W., Hon. Chief Engr. R.N. Reserve.
Slater, Charles G., Lieut. R.N.	Larkins-Walker, W., Lt.-Col. late H.M.I. Army.
White, Herbert S. N., Lieut. Rl. Marine Light Infy.	Earle, Maxwell, Lieut. Gren. Gds.
Denman, Lancelot B., Lieut. R.N.	
Godden, H. T., Capt. 2nd Bn. Bedf. Regt.	

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Yule, W. A., Major Rl. Scots. Fus.	Sherwood, H. J., Lieut. R.E.
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Edwardes, Stanley de B., Lt.-Gen. Bom. Army.	Walter, F. E., Major late R.A.
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	Gaisford, D. J., Capt. S. Wales. Bord.

FOREIGN SECTION.

THIS portion of the Number, hitherto the Occasional Notes, has now become the Foreign Section, and is reserved for articles, either original or compiled, on professional subjects connected with Foreign Naval and Military matters; also for notices of Professional Books, either Foreign or English.

The Council of the Institution wish that this section shall be developed still further, and I have undertaken to continue my Editorship during the current year, with a view of aiding them in carrying out this work. It seems to me possible to make this section, and consequently the Journal, the means of keeping our Members acquainted with all naval and military progress abroad *pari passu* with that progress; and I shall be glad to receive from members of both Services, including in the latter those of the Auxiliary Forces, suggestions, information, or offers of assistance.

It is desirable, further, that I should state that, as regards editing the Naval matter in the Section, I shall have the aid of Naval Officers, thoroughly competent to give good advice and to pronounce sound opinions.

It must, however, be borne in mind that, as the change from a quarterly to a monthly issue has been made in order to ensure the more prompt publication of the Lectures after their delivery than has hitherto been the case, the Foreign Section will, as a rule, be restricted in extent during the Lecture season in the first half of the year, and will be prominent in the second half.

It is requested that communications and books for review (the latter under cover to the Librarian) may be addressed to me at the Royal United Service Institution, Whitehall Yard, London, S.W.

LONSDALE HALE,

Colonel R.E. ret.

BALLOONS FOR NAVAL PURPOSES.

Translated by permission from the "Internationale Revue über die gesammten Armeen und Flotten."

By Captain J. F. DANIELL, R.M.L.I.

IN France, ballooning, which may be regarded as the latest hobby not only of the Army but also of the whole people, has had assigned to it in the event of war a far more important part than in any other country. It is not, therefore, to be wondered at that the idea of employing balloons for purposes of reconnaissance by sea was first started in the French Navy, and that this Navy was the first to make the necessary practical experiments with this object.

Since, however, the German Navy has also made experiments with a captive balloon for naval purposes, it may be of interest to summarize what has hitherto been done by the French Navy, and to examine critically their experiments and the results of them.

In the year 1888 the well-known Captain Renard, the head of the Central Aeronautic Establishment at Chalais-Meudon, received from the Minister of Marine orders to prepare a balloon, with all its belongings, for making experiments on a ship, and to instruct the naval detachment, which was sent to Meudon under the command of Lieutenant Serpette, in the management of a captive balloon.

The balloon usually employed in the French Army (560 cubic mètres) was too large for this purpose; in this case it was necessary to arrange for having only one person in the balloon as observer, and thus a balloon very like the ordinary military balloon, but of smaller dimensions, was made. The balloon, made out of Chinese Ponghe silk with several coats of varnish, was of spherical form with a cubical content of 320 cubic mètres, and a diameter of 8.5 mètres.

The net and car cords were of the Army pattern. The anchoring cable was, for the sake of lightness, of strong 12-mm. silk cord of about 400 mètres in length, with a telephone wire.

In order to accustom the sailors to handle the balloon in so narrow and confined a space as that offered by a ship, a stage was erected in the form of a ship, with mast complete, for practice. For the arrangement and management of the necessary apparatus for the production of hydrogen gas, a special Officer of the Balloon Division, Captain Jullien, was appointed. This apparatus was in principle the same as that which was at that time employed for filling Army balloons, viz., circulation apparatus with zinc and sulphuric acid. The account in various papers that the French for this purpose imitated the German method of generating gas is certainly incorrect.

On the 12th July, 1888, the preparations were finished, and the necessary work was begun on board the gunnery ship "L'Implacable," on the deck of which the windlass was set up, and the balloon filled. After it had been ascertained that all parts of the apparatus worked properly, the actual experiments began on July 17th, 1888, before a special Committee, presided over by Commandant Maigret. The ascent from the ship lying at anchor in the harbour presented no special difficulties, and was perfectly successful, there being hardly any breeze at all. Lieutenant Serpette, who took observations from the balloon, stated that for as far as he could see all round the horizon, no ship and sail could escape his observation, and that with the aid of his telescope he could distinguish the nationality of ships visible, and the direction of their course. To the south his field of view reached to Corsica, to the east to Nizza, and to the west to Marseilles. The results of his observations were transmitted by telephone to the ship below.

In the course of further experiments communication was established between the balloon and Admiral Arnet, who was on board another ship, by means of the ordinary naval signal code. Signals were interchanged between the two ships, and were telephoned to the car of the balloon, and answered back.

In spite of this somewhat roundabout method, communication between the Admiral and the balloon was throughout uninterrupted and accurate.

After it appeared to have been established by these experiments that the employment of a captive balloon from a ship at anchor presented in calm weather no special difficulty, further experiments were undertaken to demonstrate what use could be made of a captive balloon from a ship under weigh. With this object the balloon was put on board another ship, "L'Indomptable," probably chosen because she had very little rigging, which then put to sea. In order to have a supply of gas ready in case of need, the ship carried also two small reserve balloons. Lieutenant Serpette was in the car of the balloon observing the squadron which had been left behind; the balloon was long visible to the latter after the vessel to which it was attached had disappeared beneath the horizon. After "L'Indomptable" had cruized round the islands of Hyères with the balloon floating over it, the trials were terminated by a free cruise over the open sea. Lieutenant Serpette cast off the cable, and after a long cruise over the Mediterranean descended in the open sea by the aid of his sea anchor without any mishap, and was picked up with his balloon by the ship which followed him.

This water anchor was no new invention, but had already been frequently employed in balloon trips across the Channel. It consists of a large water-tight bag, stiffened above and kept open by an iron hoop, to which the anchoring rope is attached by means of a linen band. In the bottom of the bag is a valve which can be opened from the car of the balloon by means of a cord.

When the apparatus, hanging 40—50 mètres below the balloon, touches the water, it immediately fills and relieves the balloon of its

weight, while the latter, by throwing out ballast, is made to rise, lest it should drop on the surface of the water. If now this upward motion of the balloon is so regulated that it cannot lift the water-bag, the balloon is, so to speak, anchored; the wind will only be able to drive it slowly along, for the sea anchor acts as a drogue, and so diminishes the speed that a ship following the balloon should be able to overtake it, even with a strong breeze. If the *aéronaut* wants to ascend again, he has only to open the valve by means of the cord, and, as the balloon rises by throwing out ballast, the water flows out of the water anchor.

With this, the first experiments with a captive balloon in the Navy were terminated, and the opinion was established that in favourable weather there were no special difficulties to overcome, but yet that there were many improvements to be made, especially to find some means of avoiding collision with the masts, yards, and other raised parts of the ship.

As a consequence of these experiments, a naval balloon station was established at Lagoubran, near Toulon, under the command of Lieutenant Serpette, to which was entrusted the duty of the perfection of the material, and the training of Officers and men of the Navy in balloon service.

The experiments, which were renewed last year, show both that in the last two years very important improvements have been made in balloon material, and that the experience gained by previous trials in the management of balloons on board ship has been turned to good account.

The most important improvement consists in the present method of filling the balloon.

The method of the preparation of hydrogen at that time, whether it was done by the wet method of pouring sulphuric acid over zinc or iron, or the dry method of heating zinc with some substances which gave off water, had many defects, which would be more obvious on board ship in naval warfare than on shore in the field. The apparatus employed, in itself very complicated and heavy, requires several hours to create sufficient gas to fill even the smallest balloon; it also requires large quantities of the chemicals used, viz., zinc and sulphuric acid, and this may easily lead to accidents. If also on shore it is a matter of difficulty in bad weather to transport the filled balloon, which has taken hours to fill, from one place to another and to keep it filled, how greatly are all these difficulties increased on board a ship under weigh! Everyone who knows anything about sea-life knows that totally calm days or moderately calm days are the exception, and that sudden squalls are no rare occurrence. If then the captive balloon is to be successfully employed at sea, it must be contrived that it can be filled in a very short time immediately before it is wanted, and be rapidly brought into action, for it is impossible at sea to take a filled balloon about all day ready for use when required.

These considerations have led the French to the introduction of a method of filling which will certainly in the future be everywhere employed on land in field warfare.

The gas is no longer made on board ship as required, but is kept all ready stored up in steel cylinders. These cylinders are 2.40 mètres long, 0.13 mètres in diameter and are made of a thickness of 3 mm. They hold 4 cubic mètres of hydrogen under a pressure of 120 atmospheres, and weigh only 30 kilogrammes.

At the rounded end is a cock which can be opened to let out the gas.

As many of such cylinders as are required can be simultaneously opened into an exhauster connected with them by an india-rubber tube, and the balloon can thus be filled in a very short time.

This method of filling the balloon, invented in England, was successfully employed by the Italians in the Abyssinian campaign. The gas is manufactured and is compressed into the cylinders on land. On account of the small weight and volume of these cylinders, eighty of which are needed to fill a balloon with a cubical content of 920 cubic mètres and weigh 2,400 kilogrammes, a ship with a balloon can easily take enough to fill it several times.

Another very important improvement consists in the fact that in the experiments made last year the balloon was not, as had hitherto been the practice, triced up directly from the windlass on deck, in which case both the balloon and the cable, when the ship was in motion and there was any wind, were very liable to be injured by the masts and other parts of the ship. The idea had been thought of to fasten the cable to the highest part of the ship itself, namely, the mast, whilst the windlass remained on deck.

By the help of a very simple arrangement of leading blocks, the balloon can be brought from the after part of the deck straight up and down the mast while the cable runs over a hanging spindle or roller. This is not a new idea; a very similar arrangement is in use in Riedinger's establishment at Augsburg, where the balloon is started from the platform of a tower, so as to avoid coming into collision with high trees and factory chimneys. This arrangement can naturally only be employed on board large ships which have very heavy spars and masts; on board small vessels, such as torpedo-boats, the balloon can more easily be made fast to the deck and without the danger, which has been previously referred to, of coming into collision with the spars.

It appears, moreover, that the employment of a silken anchoring cable has been given up and a steel cable adopted instead.

In August and September, 1890, some practical experiments were made to test the new improvements as follows:—After the experiments had commenced with several ascents on shore, in a captive balloon at Lagoubran and Tamaris, practice was begun with captive balloons afloat. On the 21st and 23rd of August, the balloon was attached to a boat only 10 mètres long, a launch, or torpedo-boat, and taken along by this vessel, while on the 29th August an ascent was made in the presence of Admiral Duperré, the inspecting Officer, who himself made an ascent of 250 mètres.

In the first half of September the exercises commenced on board the armour-clad "St. Louis," which was lying near the islands of

Hyères. The balloon was towed from the harbour of Toulon to the "St. Louis" by the torpedo-boat "L'Audacieux," and transferred from the latter to the ship. During the return of the "St. Louis" to Toulon, several captive ascents were made, and thirty Officers of all ranks went up. The Captain of the ship, for a time, carried on the command from the balloon, at a height of 250 mètres, transmitting his orders by telephone. Finally, Lieutenant Serpette cast off the cable, at a height of 200 mètres, to make a free ascent. The balloon rose to a height of 1,800 mètres, and came down in the open sea, using the sea anchor, without the car touching the surface of the water. The torpedo-boat which went after the balloon took it in tow and brought it back uninjured to the "St. Louis." The signal stations, where the cause of the ascent of the balloon to such a height was not known, had signalled that the cable had broken.

The trials were then continued on board the flagship "Formidable." The position for the balloon was fixed, and the balloon filled, behind the armoured turret on the aft-deck. From here it was hauled by means of blocks to the mizen-top, and was hoisted up by a running block; the cable was led down to the windlass on deck, so the balloon could be manipulated from the deck.

Several Officers of the ship again made ascents, and ascertained that in clear weather all the details of the coast, from Marseilles to the extreme point of the islands of Hyères, were plainly visible, and that no building nor ship, for 30 to 40 kilomètres round, could escape the notice of an observer in a balloon. They also verified the fact, which all aeronauts have noticed, of the transparency of the water when looked at vertically downwards. The bottom of the sea, at a depth of 25 mètres, was clearly distinguishable, and the movements of a shark were watched with interest.

The behaviour of the balloon throughout these exercises was all that could be wished; it withstood, at times, very strong winds, and could be towed along by a ship going at full speed, with 50 mètres of cable, without suffering any damage. Thus, on September 6th, the torpedo-boat "L'Audacieux," with the balloon attached to it, steamed in two hours 21 miles, from the roadstead at Toulon to the place where the "St. Louis" was anchored in Hyères roads, keeping the balloon at a height of 50 mètres. The conclusion was, however, come to, that in case of having to carry a filled balloon, it was better to do so on an armour-clad vessel, fastened to the deck from its equatorial line. Under these circumstances it could better resist the strength of the wind, especially if it were protected by a sail stretched round it.

Some practice, of a specially interesting nature, was carried out at the naval ballooning station and school at Lagoubran, on the occasion of the inspection of the establishment by Admiral Réunion, the Préfet Maritime. After the Admiral had held a theoretical examination of the students, he directed that an ascent should be made, in which he himself took part, and transmitted by telephone his orders as to the movements of the balloon. The balloon was then made fast to a torpedo-boat, which went through several evolutions. It was then brought ashore and made fast to a cart dragged

by eight men and followed by thirty-six men, and in this manner was moved about without any difficulty, thus showing that a balloon can also be used to accompany landing parties from ships.

The German Navy also, in September, 1890, made their first experiments in the employment of a captive balloon on board the "Mars," about which the journals, and especially the "Post," have given detailed accounts. It was shown that in calm weather there was no difficulty in handling a balloon from a ship at anchor, or one going at moderate speed, although for these experiments no special material was employed, and the ship had no special fittings. Several captive ascents were carried out up to a height of 600 mètres, and all the Officers of the ship took part in them.

The further carrying out of the trials in the open sea was hindered by bad weather, but it was ascertained that the balloon was quite sufficiently strong to stand bad weather without sustaining any damage. As the ship was wanted for other purposes, it was impossible to wait for better weather, so that after a few days the experiments had to be stopped.

The question now is, what experience has been gained, and what is the final result of the practice which has hitherto been carried out with captive balloons on board ships of war?

There is no doubt that captive balloons can be employed for naval purposes, but their employment is much more influenced by meteorological considerations than is the case on land. If, therefore, it is the opinion of naval men that reconnaissance by means of balloons from a ship is desirable or necessary, the fact must be faced that for this purpose a special sort of balloon apparatus must be made, and also that, when possible, the ships which are to be equipped with a balloon should have special arrangements both for the speedy filling and the security of the anchored balloon.

On the high seas the importance of the reconnaissance from a ship of a squadron under weigh by the aid of a captive balloon will be of so little importance that it could hardly be worth while to burden a ship with all the apparatus of a captive balloon, which, in spite of every improvement, must always be unwieldy, for in clear weather all that is necessary can very well be seen from the look-out station at the mast-head, and in thick weather the balloon offers no advantages over the latter place. It is in the case of a blockade or an attack on a fortified coast place that the balloon can play an important part.

Its capabilities and opportunities are in such circumstances almost the same as on land. By means of it all the arrangements of the besieged force, all their works and important buildings, can be observed, and the fire of the guns of the attack can be directed from the balloon, and all the counter measures of the besieged force can be rendered useless by timely warning of them being furnished. Consequently it would be well worth while to attach a captive balloon to a squadron undertaking operations of this nature, and would very much facilitate the successful carrying out of the operation.

Finally, mention might here be made of the possible employment of balloons on board ships making expeditions for Polar research. In consequence of the result of the French experiments with a captive balloon for naval purposes, the idea has been started by an English naval Officer, who was President of a Committee in Melbourne for a South Polar expedition, of fitting out the squadron for this purpose with a balloon.

The chief obstacle in South Polar expeditions is the great wall of ice, some 60 mètres high, the extent of which in the direction of the Pole it has hitherto been impossible to discover. The Officer mentioned went to France to make inquiries as to the fitting out of a ship with a small captive balloon to answer this purpose. Opinions there were, however, divided as to what method of generating gas would be preferable, whether the French or the German method. Finally Lachambre, who has already supplied several foreign States with balloon material for war purposes, sent to Melbourne an apparatus for generating hydrogen gas. Of the further results of this latest idea of the employment of balloons nothing is yet known, but the idea is, at any rate, a good one.

DISCIPLINARY COMPANIES IN THE FRENCH ARMY.

Summarized from the Rapport et Décret du 3 Juillet, 1890, sur l'Organisation des Compagnies de Discipline, by Major C. BARTER, Staff Captain.

MOST foreign armies have disciplinary corps, usually located in fortresses, to which incorrigible and refractory characters are sent for a term of punishment. Germany has disciplinary divisions, Russia disciplinary battalions, and France disciplinary companies. These companies, of which there are four, originally organized in 1818, have, several times since their creation, been the subject of new decrees and ordinances which have considerably altered their constitution. The latest remodelling has been necessitated by the great organic modifications in the organization of the Army which have taken place since the great war of 1870-71. The changes now made are embodied in a report which has recently been presented by the Minister of War to the President of the French Republic, and which has been published simultaneously with a decree containing amended articles for the government of the companies.

The principal changes effected are those relating to the terms of punishment service with the companies, to punishments in them, to rewards and organization, and to powers of the Minister of War with regard to sending military persons to them.

With respect to the period of punishment with a disciplinary company, an offender may now be returned to his corps after six months of good behaviour, instead of after one year—the minimum term hitherto. This curtailment of time has been necessitated by the introduction of the system of three years' service with the colours. Were the old minimum term to be retained with this system, the men would almost invariably receive their discharge directly from the disciplinary companies, and therefore have less inducement to reform.

In the matter of punishment, a uniform method now takes the place of the variety of systems hitherto obtaining in different companies, and special powers are given to the commanders of companies in connection with the treatment of very bad and obstinate offenders. On the other hand punishment cells are abolished, and irons are only retained in the interests of the men themselves, for use when it is necessary to prevent them from committing acts of violence against themselves or against others. Special stress is laid on the fact that this preventative measure is not to be looked upon as a punishment.

Rewards of a monetary nature for work done are so regulated as to enable the authorities in charge of a company to recompense those who evince the desire to improve, by increasing their material comfort.

Companies are now homogeneous in organization, as will be seen later. Hitherto there were three categories, which differed as regards the severity exercised in each. They were known as: (a) the fusilier companies, reserved for those offenders who, by the nature of their offence or by reason of good conduct, might expect soon to be returned to their corps; (b) the pioneer company, composed of men who had conducted themselves badly in the fusilier companies, or who had already done a term in the latter; (c) the colonial companies under the Marine Department.

The powers of the Minister of War have now been precisely defined so as to give him authority to send direct to the disciplinary companies such persons as have taken part in collective breaches of discipline.

The decree, signed by the President of the Republic, and countersigned by M. de Freycinet, Minister of War, is really a code regulating the constitution and government of the companies, and is divided into three parts or "titres."

The first part, or "titre," which contains the general dispositions, deals, first of all, with the classes of military persons liable to incorporation in the companies for a term of punishment. These are: men guilty of an infraction of the recruiting law, and those young soldiers who, in time of war, are guilty of insubordination; military persons taking part in collective breaches of discipline; men whose conduct with their corps, although it has not been such as to render them liable to trial by court-martial, has nevertheless been of an incorrigible nature and likely to affect discipline by bad example; malingerers; prisoners who have been sentenced for an offence committed whilst with a disciplinary company, and who have been pardoned, or who, after the completion of their term in prison or penitentiary, must return to the disciplinary company. In the case of the incorrigibles and malingerers, offenders cannot be sent to one of the companies except on the recommendation of the disciplinary councils of the corps to which the men belong.

Each company includes "fusiliers" and "pioneers"; these latter are grouped into one section, which is called the "disciplinary pioneer section." This section receives men who, on account of the gravity of their offence, or by reason of bad conduct in the disciplinary companies, merit a more severe *régime*; offenders who have done a previous term in a disciplinary company; and malingerers, who are placed in a special section called the "section des mutilés."

The cadres of companies in the matter of Officers, non-commissioned officers, and drummers or buglers, are nominated by the Minister of War. Non-commissioned officers are encouraged to serve with the companies by the promise of promotion, on re-engagement, into the infantry regiment of their choice, with the rank of Adjutant, after nine years' service with the companies, and after a four years' registration of recommendation for promotion.

Men whose term of military service expires whilst they are doing a term of punishment with the disciplinary companies are passed into the reserve in the same manner as other soldiers. They are, how-

ever, required to complete, integrally, their period of service with the colours.

The second part of the decree is concerned with the formalities preceding the despatch of an offender to a disciplinary company, with his transfer, if necessary, from one category to another, and with his return to his corps. The procedure, in the first case, may be briefly stated as follows:—The Officer commanding the company, squadron, or battery of a soldier of bad character furnishes a detailed report regarding the man to his immediate superior, together with a recapitulation of his offences, and with the Officer's opinion that the man's continuance in the corps is prejudicial to good order. This report is forwarded on, and a disciplinary council is convened before which the offender appears, and to which he may furnish explications, or offer a statement in his defence. The disciplinary council then expresses a simple opinion, which may be modified by the General commanding the Army Corps or the division.

With regard to the transfer of a "fusilier" to the "pioneer" section of his company on account of an offence committed whilst in the disciplinary company, it is necessary that the case should first be submitted to a disciplinary council which is composed of Officers and of the most senior non-commissioned officers of the company.

Men who have given reliable proofs of their desire to reform are sent back from the disciplinary companies to a corps of their own arm but other than the one in which they originally served. On the other hand, those whose conduct is bad are passed on, as has already been stated, to the "pioneer" sections of their companies. The reward for a "pioneer" of good conduct is re-transfer to the "fusiliers" of a company, but no man can be re-admitted to the "fusilier" sections until he has served three months as a "pioneer." As has already been remarked, six months is the minimum term of punishment with the disciplinary companies, but exceptions to this rule may be made in the case of men who in moments of danger have shown bravery or devotion.

Part third contains instructions relating to the internal economy and discipline of the companies. It begins by explaining that the "disciplinaires" are considered as being in a permanent state of punishment, and that as such they can be granted no indulgences of any sort. Convalescent leave to their homes may, however, be allowed to men whose ill state of health has been the result of an act of bravery or devotion, or whose wounds or diseases have been received or contracted on service, or at work which they have been ordered to perform.

As regards the labour to which the men are put, it is as far as possible made to serve a useful military or public purpose. The hours of work are from six to nine hours for "fusiliers," and from seven to ten hours for "pioneers." Manual labour is generally remunerated, the company, and not the individual, profiting by the general work performed.

The punishments which are awarded in a disciplinary company are carried out in the same manner as in other corps of the Army, and no

other punishments can be inflicted other than those sanctioned for infantry corps, or specially mentioned in the decree. Any physical punishment is strictly prohibited.

The following are the punishments which may be awarded:—By corporals, 2 days in the guard-room; by other ranks below that of sergeant-major, 4 days; by sergeant-major and Adjutants, 8 days; by Subalterns, 15 days; by Captains, 30 days guard-room or 15 days imprisonment, of which 8 days may be commuted to cells. In addition, Officers commanding companies have the same powers as the Colonel of an infantry regiment with regard to the remission of punishment.

The placing of men in irons in cases of violent conduct may be resorted to only when no suitable place is available which may serve as a prison. In any case, no term is to be assigned for the duration of this preventative measure. The irons are to be removed as soon as the state of an offender has become calm.

The internal administration of a disciplinary company is the same as that of companies of infantry.

With regard to the money gained by the men's work, half is devoted to the messing, and half to the common funds of the company.

As no "disciplinaire" is allowed to have any money about him, the small sums which he earns as rewards or as extra pay are deposited in his name in the savings bank. The "fusiliers," but never the "pioneers," are, however, allowed to receive in kind a portion of this money.

The "fusiliers" of the company perform all the necessary military duties. They are armed whilst in the performance of these duties and during military exercises; but at other times their arms are securely stored away. The "pioneers" perform no military duties, but they are practised in artillery and engineer manual work, and in infantry exercises. The arms used in the latter are stored away like those of the "fusiliers," as well as the pioneer tools with which they work.

There are special regulations regarding the uniform and arms of the Officers and their subordinates. The dress of the "disciplinares" is regulated by instructions from the Minister of War, one rule being that the face must be clean shaved.

The food of the men is the same as that of soldiers in companies of infantry, but a restriction is made in the case of the "pioneers," who receive no "eau-de-vie," and who can earn no tobacco tickets.

Offenders to whom has been awarded guard-room punishment receive coffee only every other day; men in prison have issued to them, daily, bread and two soups, one of which is without meat; whilst men in cells have bread and one soup each day, the soup being without meat.

There are no disciplinary companies in France itself. All four are located in Tunis and Algeria, the headquarters of the companies being at Gafsa, Biskra, Méchéria, and Annale. Until this year there was a "pioneer" company in Tonquin, but this special company no longer exists, each of the existing disciplinary companies, as has already been explained, now possessing its own "pioneer" section.

MILITARY MANŒUVRES IN 1891.

GERMANY.

THE manœuvres in the presence of the Emperor will be carried out by the IVth and the XIth Army Corps (including the 25th, Grand Duchy of Hesse, Division). The XIth Corps will carry out a manœuvre against a marked enemy; the IVth Corps will be divided into two portions which will manœuvre against each other; and, finally, the two corps will operate against each other for three days. With the IVth Corps a Reserve Division will be formed.

A Cavalry Division will be formed in the IVth, XIth, IInd, and XVIIth Army Corps, the Divisional Commanders and the Brigadiers being nominated by the Emperor. Previous to joining the respective Army Corps, the Cavalry Divisions will work by themselves independently, and the last-named two will have three days' manœuvring against each other under the direction of one of the Inspectors of Cavalry, Lieut.-General von Rosenberg.

The usual autumn manœuvres will be carried out in the other corps.

At Metz there will be an exercise for the garrison artillery, and, at Grandenz, one for the pioneers, both on a large scale. The dates of these manœuvres are not yet announced.

(Extracted from the "Armee Verordnungs-Blatt," No. 3, March 1, 1891.)

FRANCE.

The 5th, 6th, 7th, and 8th Army Corps and the 4th and 5th Cavalry Divisions will carry out manœuvres for a period of sixteen days. The 5th and 6th Corps with the 1st Cavalry Division will form the Northern Army under the command of General de Gallifet, and will concentrate probably on the line Bar-le-Duc—Châlons.

The 7th and 8th Corps with the 5th Cavalry Division under the command of General Davout, Duke of Auerstadt, will, it is anticipated, assemble between Tonnerre and Châtillon-sur-Seine. General Saussier, Governor of Paris, takes direction of the manœuvres, and he will be assisted by General de Miribel, Chief of the Staff of the French Army. Manœuvres will likewise be carried out in the 14th and 15th Army Corps in accordance with a programme not yet published. In the 1st, 9th, 10th, 11th, 12th, 13th, 16th, 17th, and 18th Corps there will be fifteen days' divisional manœuvres, and in the 2nd, 3rd and 4th Corps there will be fourteen days brigade manœuvres. The brigades at Lyon and Sedan will also manœuvre. All companies engaged in the operations are, if possible, to have an effective of 180 men.

At Châlons the 2nd and 6th Cavalry Divisions with their artillery will carry out manœuvres for 12 days from the 24th August to the 4th September under the direction of the President of the Cavalry Committee. All the brigades of cavalry not included in the above list will work as brigades for eight days.

(Extracted from the "Bulletin Officiel du Ministère de la Guerre," Supplémentaire No. 12, of February 18, 1891.)

AUSTRIA-HUNGARY.

Imperial Manœuvres.—The 2nd and 8th Army Corps, and some of the Landwehr troops, will be engaged in these manœuvres. They will take place in the neighbourhood of Waidhofen, on the Thaya, in Lower Austria, between the 1st and 7th September.

Cavalry Manœuvres.—Special cavalry manœuvres for the Cavalry Division of the 1st Army Corps (Galicia), ending on the 19th September.

Cavalry brigade and divisional manœuvres for the cavalry of the 2nd Army Corps (Lower Austria and Southern Moravia), from the 25th to 29th August.

3rd Army Corps.—Divisional concentration manœuvres for the 6th and 28th Infantry Divisions. To conclude with two days' Army Corps manœuvres (31st August and 1st September) in the neighbourhood of Cilli, in Southern Styria. Some Landwehr troops will take part in the corps manœuvres.

5th Army Corps.—Manœuvres of the 14th Infantry Division, near Pressburg; of the 33rd Infantry Division, near Komorn; and of the 16th Cavalry Brigade, near Tyrnau. To conclude with two days' corps manœuvres (10th and 11th September), in which some of the Honved Landwehr will take part, in the district of Nagy-Tapolcsany, on the Neutra (Hungary).

12th Army Corps (Transylvania).—Concentration manœuvres of the 16th Infantry Division near Maros-Vasarhely, of the 35th Infantry Division at Dees. To conclude with two days' corps manœuvres (14th and 15th September), in which some of the Honved Landwehr will take part, in the district between Szasz-Regen and Bistritz.

15th Army Corps (Bosnia and the Herzegovina).—There will be divisional manœuvres, concluding with corps manœuvres. Dates not specified.

Fortress Manœuvres.—To be executed by troops of the 5th Army Corps at the fortress of Komorn, on the Danube, under the direction of the Inspector-General of Artillery. To terminate on the 14th August.

Pontooning Operations.—On the Danube, near Linz. To last three weeks.

Hasty Bridging Practice.—On the Dran, near Pettau (Southern Styria). To last three weeks.

Field telegraph operations are also to be carried out. Place and date not specified.

There will be divisional manœuvres for the infantry, and brigade

manœuvres for the cavalry, in most of the Army Corps not mentioned in the foregoing.

(Information extracted from the "Armeeblatt," of March 11, 1891.)

ITALY.

Summer Camps of Instruction in 1891.

1. During the current year camps of instruction for infantry and cavalry will be held, as well as manœuvres of reconnaissance in front of an army.

2. The infantry camps of instruction will take place by brigades, at the rate of one for each military division; their duration will be twenty-five days from the 20th June to the 15th July. The effectives of regiments will be increased by soldiers of the 1st category of class 1865, called out for this purpose.

3. A cavalry camp of exercise will be held at Pordenone from the 1st to the 30th July. The four regiments of cavalry quartered in the Vth Corps region and a brigade of horse artillery will take part.

4. An exercise of reconnaissance in front of an army, of some ten days' duration, will be carried out in the region of the Xth Army Corps. Four cavalry regiments and two batteries of field artillery to be told off for this purpose by the chief of the Army Corps will take part in this exercise.

Other reconnaissance manœuvres, to last about a week, will be undertaken by the 2nd and 10th and the 22nd and 23rd Cavalry Regiments, profiting by the changes of garrison ordered to take place by Circular No. 35 of the 25th ult.

* * * * *

Other instructions, especially as regards the exercises of the Alpine troops and mountain batteries, will be communicated later to Commanders of Army Corps.

(Extracted from "Giornale Militare Ufficiale," Part II, disp. 8, February 28, 1891.)

NOTICES OF BOOKS.

Some Notes on Military Topography. By Captain WILLOUGHBY VERNER, Rifle Brigade. London: Allen, 1891. Pp. 127. Size 10" x 6½" x ¾". Weight under 1 lb. 6 oz. Price 5s.

These notes are practical and useful, and deal with various matters connected with the study and practice of Military Topography, but more especially with the use of the magnetic pocket compass for military purposes.

Warwick, the Kingmaker. By CHARLES W. OMAN. London: Macmillan, 1891. Pp. 243. Price 2s. 6d.

Of the sixteen biographies of the *English Men of Action Series*, of which this is the latest issue, there is not one more interesting or more valuable than this. "Popular history," writes the author, "has given Warwick a scanty record, merely as the 'Kingmaker, or the Last of the Barons,' as a selfish intriguer, or a turbulent feudal chief; and for four hundred and ten years he has lacked even the doubtful honour of a biography." Mr. Oman gives no mere dull record of facts and dates. His "Man of Action" is a specimen of what our aristocracy were in the days of the plenitude of their power. The contemplation of power and might does possess a great amount of fascination for most of us ordinary individuals. Mr. Oman tells us fully and pleasantly what were the power and might of the Nevilles and their foes the Percies of the 15th century. The "blue blood" of the 19th century derives its colour from other sources than territorial possessions, territorial power, and descent; but the severest Radical cannot read this charming little book without condoning to a great extent the belief held in its virtues by the descendants of the great men of action of four centuries ago.

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